METHOD OF CONDUCTING A STATE-WIDE HIGHWAY PLANNING SURVEY

A Thesis

Submitted for the Degree of

CIVIL ENGINEER

By

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INDEX OF THESIS

Three Different Modes of Transportation

Highway, Railroad and Water

Road Constructed Primarily as a Scenic Route

PART I

THE NECESSITY OF HIGHWAY PLANNING

The Necessity of Highway Planning

The growth of highways in the United States is comparable in many respects to the growth of a fruit tree which a man planted originally for the pleasure of just being the possessor of a tree. The movement for the building of roads was started about twenty years ago by the incentive of having good roads on which to go for a ride somewhere outside of town for an outing, either by horse or bicycle or by that rare and rather terrifying invention, the automobile. The roads at this time were built largely for pleasure or through jealousy aroused by the fact that neighboring towns or counties had better roads. These roads seemed to be quite self-sufficient, in that they rarely had any connection with each other, and were quite indifferent, in that they never attempted to go very far nor have any specific reason for going at all. The roads, like the tree, were permitted to grow of their own volition, prompted occassionally by spurts of enthusiasm through contributions of either tax money or direct labor.

Building of roads for pleasure continued through the first decade of 1900, but there were a few men of vision who saw that if the tree were to grow in strength and bear fruit, some attention must be given to it. The trunk and the main branches must be strengthened, and so was started the movement for the establishment of the Federal Bureau of Roads and the various State Highway Departments. These leaders realized that main highways connecting cities and states must be constructed to foster the support and growth of feeder roads in the same manner that the trunk and main branches of a tree foster the support

and growth of the smaller fruit-bearing branches.

Construction of roads was financed in the beginning through property taxation, but as automobiles increased in number, taxation was placed directly upon the owner through the medium of a license and a gasoline tax. The proceeds derived from these latter sources have increased far beyond conception so that today our highways are supported in whole by the direct taxation derived through automobile ownership. This continual and increasing flow of revenue, contributed in part by the Federal Government and in part by the respective states, has made it possible to construct a national highway system which makes it feasible for us to travel throughout the nation in any direction over improved roads.

We have today approximately 330,000 miles of roads under the Federal and State Systems classed as primary roads, but many of these roads are far from satisfactory. A great number of these roads were not designed to sustain the deteriorating impact to which they are subjected due to an ever increasing flow of traffic and an ever growing movement of heavily loaded trucks and busses, nor were they designed with respect to width, alignment and grade to provide for the ever increasing speed at which the automobile of today travels. All of these factors, which fail to co-relate existing road conditions with modern traffic conditions, must be corrected and improvements projected in order to revise these obsolete conditions.

There remains another type of road which far exceeds in mileage the State and Federal roads; namely, the secondary roads throughout the nation which are estimated to aggregate some 2,700,000 miles. Heretofore, these secondary roads received no

consideration except at the hands of local authorities in their respective counties, and while a goodly portion of these roads has been improved to some extent, the major portion has received little or no attention. As each year brings nearer to completion the paving of main routes, and as there seems to be no abatement of income for road building purposes, there is a growing tendency on the part of the people to do something with the secondary roads. This movement towards improvement of secondary roads has increased in importance to the extent that the Federal Bureau of Roads now allocates a specified percentage of funds for their construction and in most states a separate department has been set up under the aegus of the Bureau to prosecute this work.

We stand today at the cross roads of highway construction, The way back cannot be retraced, we must go forward. We can arrive at our destination by going to the right and continuing improvement of the main routes or by going to the left and constructing only such secondary roads as may be demanded for selfish reasons. These two routes may offer the least resistance, but they are, by far, the longest and the costliest. The other way open to us is straight ahead by means of intelligent planning. We will encounter difficulties here because of factional jealousy, but certainly our destination will be reached with a saving of both time and money.

Our problem is not one of how many miles of roads we can build, nor of how many miles we can maintain, but one of how many miles of roads we are willing to own. The increasing demand for improvement of secondary roads, as well as revision of the present primary roads, will create an excessive strain upon

our financial resources. Unless we approach the subject of future highway construction by means of a scientific analysis of the entire highway transportation problem, we will have a structure resting upon the shifting sands of public opinion, which will require constant shoring and bracing at great expense if we are to build upward.

There is another important factor which heretofore has been given no consideration whatsoever in the field of highway construction, but which may become one of the predominating problems to contend with. This problem, which may transcend present day factors, is that of redistribution of population. Communities, in the past, were established in a somewhat concentrated pattern, brought about by the attractive forces of water and rail transportation supplemented by steam power; whereas, in the future, new communities may and probably will be established in a diffused pattern actuated by the repellent force of a more flexible motor vehicle transportation supplemented by an equally facile electrical power. We have already seen this factor taking growth in the dispersement of industry from the highly centralized plants to widely scattered branch units, in the decadence of once prosperous river and railroad towns, and in the compulsory abandonment of non-productive farming sections. We cannot ignore this possible readjustment of population entirely in planning highways of the future; because, if we do, we may invest money in roads which in years to come may have no justifiable reason for existing.

Ford Across Creek

Practically Impassable by Automobile

PART II

THE PURPOSE OF A HIGHWAY PLANNING SURVEY

The Purpose of a Highway Planning Survey

A Highway Planning Survey serves the same purpose to the road builder, and the public at large, that a diagnosis and a case history of a patient serves the attending physician. The purpose of a Highway Planning Survey can best be explained by taking each phase of the Survey, and detailing the specific purpose of that one division, and then consolidating this information into a unified statement apropos of the Survey as a unfied problem.

The purpose of the Road Inventory is to secure all pertinent data pertaining to every publicly traveled road in the state. This data will be made up of such information as the location, length, width, material, condition and drainage facilities on each road; the location, type, load bearing capacity, safety of approach and condition of bridges; the location, visibility, safety condition and accident record of all railroad crossings; the location of all houses, farms, schools, churches, business establishments, industries, railroads, navigable streams, airports, and local road building material deposits, on or near each road; the terrain and the types of soil in every section traversed by each road.

Data acquired, as a result of a state-wide Traffic Survey, will make it possible to segregate all roads as to their relative traffic-carrying importance. This information will consist of density counts on key circuits, where traffic will be tabulated by the hour and classified as to passenger cars, trucks and busses, both local and foreign; the direction from which these vehicles came and in which they are going. Weight data of

trucks and busses will also be secured at designated points, whereby will be determined the type, weight, width, length, height, load capacity, load carried, commodity carried, place of ownership, origin, destination and trip mileage for every truck and bus that is stopped and weighed. Blanket counts at numerous county road intersections will supply information as to secondary road traffic. Origin and destination studies will provide a comprehensive history of individual travel for a state-wide average. Automatic eletric counters will supply a continuous picture of traffic flow over selected primary and secondary roads.

The Financial phase of the Survey will disclose what portion of taxes has been, and is being, expended for the construction of roads, Federal, State, and County; how much is allocated for city streets; what percentage of the tax dollar goes towards this type of public expenditure; what proportion is paid by the urban populace and by the rural populace; what part of this burden falls upon the automobile owner and the non-owner; and to what extent highway expenses are borne by commercial users of the highways, as compared to the private individuals.

The purpose of the Road Life Study is to compile data on all types of construction and under varied traffic conditions; in order that, in the future, the life expectancy of each type of road may be brought under a practical formula, in somewhat the same manner that is employed by insurance companies in formulating the life expectancy of individuals. Research work on this phase will cover the entire history of the roads on record throughout their period of existence, from the grading to the surfacing, and on through maintenance.

Final compilation of all of this information will give us the only comprehensive picture of highway history to date. It will, for the first time, tell us how many miles of roads we have; what type they are and the nature of the territory they serve; it will provide us with complete information as to the amount and kind of traffic our roads carry; it will enlighten us as to the cost of roads and the distribution of these costs, which heretofore has been a problem of crystallomancy; it will inform us concerning the life expectancy of all types of roads; it will enable us to plan our future mode of existence from a geographic standpoint; and finally, it will greatly assist us in unravelling the very vexing problem of a national transportation system, which yearly is becoming so complex that it seriously affects our entire economic structure.

Dangerous Two Lane Underpass on Federal Route

Constructed on Point of Reverse Curve

PART III

ROAD INVENTORY

Road Inventory

Field Work

General

Inventory of roads shall be performed by a party consisting of a chief of party, recorder, chainman, and a field draftsman. The equipment necessary to prosecute the field work shall consist of the following:

Automobile (Sedan or Coach equipped with odometer)
Tire Gauge
Forestry Compass
Plumb Bob
Hand Level
50' Metallic Tape
100' Steel Tape
6' Folding Rule
Drawing Board (21" x 26")
Clip Board (9" x 13½")
Clip Board (18" x 24")
Two Binders (18" x 24")
10' Painted Rod (3/4" x 2")
Tack Hammer
Short Handled Mattock
Inventory Tags
Box Letter File
Two Red Flags
Portable Drawing Table
6" and 12" Engineer's Scale
Two 8" Triangles (30 - 60)

Two 10" Triangles (45)

6" and 8" Protractors

36" T Square

Stationery Supplies

Forms HPS - 1, 4, 5, 6, 8, and 200

Standard Field Tables (General Land Office)

Map of County to be Inventoried

Descriptive Data of U.S.C. & G.S. Triangulation Stations of County to be Inventoried

The party shall establish headquarters at the county seat in order that county officials may be questioned regarding information which may not be available in the field. The party chief shall then interview the county commissioner, county school superintendent, county warden, postmasters and other officials who may have road information of value to the party. Before beginning work, the chief of party shall familiarize himself with the county map and lay out inventory zones. These zones shall be bounded by definitely established features, such as state routes, major county roads, rivers or railroads. All roads shall be assigned a number, but only as they are inventoried with the exception of state routes which shall carry the number assigned to it by the state.

Odometer

The odometer shall be checked for accuracy before starting work in each county, each time the tires are changed, and on other occasions when doubt may arise as to any variation of reading. This shall be done by making a test run over a chained or known distance of five miles or more. If the odometer

distance varies more than two percent from the known distance, the tire pressure shall be changed until the odometer records the distance to the desired accuracy. A permanent record of this test run shall be made on Form HPS-200 (see sample form). The tires shall be checked each morning before beginning work and the same pressure maintained throughout the inventory in that county.

Triangulation and Traverse Stations

Description of the location of all triangulation stations, first order traverse stations, and local control stations will be furnished the chief of party. These stations shall be tied into the road, on or near which they are situated, by odometer reading, distance, and bearing.

Federal and State Projects

All Federal and State Aid Project markers shall be located on their respective roads by odometer reading, indicating the number and direction of the project.

Cities and Towns

All cities, towns and villages shall be located on roads which extend to, or through their limits. Odometer readings shall be taken at all corporate limits. The city center and the geographic center shall also be located in each case; the former being that point from which mileage is generally measured by the public, such as the court house, city hall and railroad station. Cities, towns and villages shall be listed according to the following classification:

1.	Incorporated	Postoffice	Railroad
2.	Unincorporated	Postoffice	Railroad

3.	Incorporated	Postoffice	No railroad
4.	Unincorporated	Postoffice	No railroad
5.	Incorporated	No postoffice	Railroad
6.	Unincorporated	No postoffice	Railroad
7.	Incorporated	No postoffice	No railroad
8.	Unincorporated	No postoffice	No railroad

A complete inventory shall be made of all roads and streets in all unincorporated towns. Cultural items along roads through incorporated towns shall not be inventoried, but items common to all towns such as curb and gutter, sidewalks, names of streets traversed, railroad station, city and geographic center, shall be recorded. Roads and streets through sub-divisions and private mill villages which are open to public use shall be inventoried as in unincorporated towns.

Reservations

Roads through public reservations shall be inventoried and the boundaries indicated by odometer reading on each road. These reservations shall be classified as follows:

National Forest

National Forest Development

Military

Indian

Other National Reservation (kind)

State Forest

State Park

Other State Reservation (kind)

Typical Important County Road

Insufficiently Maintained

Roads

The alignment of all roads shall be established by compass bearings to full degrees and the length by odometer readings to the hundreths of a mile. The point of intersection of all curves shall be located by odometer readings and the direction of curvature by tangent bearings. All roads shall be tied into each other by odometer equalities, bearings, and road numbers by the use of inventory tags (see sample tags), and these tags shall be tacked to a tree or other object at each intersection so that the information can be readily obtained as each new road is inventoried. All roads maintained at public expense over which a four wheeled vehicle can travel shall be logged, and if they are impassable for automobile travel, they shall be measured with a hundred foot steel tape. Inventory of toll roads shall include the name of the owner, the name and address of the principal officer, and a schedule of the toll rates.

All data pertaining to road inventory shall be recorded on Form HPS-6 (see sample form). The center line of this form, which represents the road, is divided into tenths of a mile in order to facilitate the recording of odometer readings. Alignment data, bridges, railroad crossings, road intersections, city, county, section, and state lines, and such items as relate directly to the road proper shall be sketched on this center line. Special data required for bridges and railroad crossings shall be recorded on separate forms as explained in a separate succeeding section.

Cultural items shall be recorded with respect to odometer reading and distance from the center line in their proper location on Form HPS-6 (see sample form), using the symbols listed

under a seperate section. All power and telephone lines, railroads, and streams shall be sketched on this form whenever they come within the line of vision of the inventory party even though they do not cross the road.

Classification of roads shall be listed in classification spaces one to five by the use of symbols as explained under a separate section. Traffic conditions on each road, as observed by the inventory party, shall be noted under remarks at the bottom of the straight line form.

Culverts

Drainage structures with a clear span of from 10 feet to 19 feet, measured along the center line of the road, shall be recorded on Form HPS-6 by odometer reading and shall be described as follows:

1. Type and material
2. Length
3. Width
4. Height (stream bed to floor or road surface)
5. Condition
6. Name of stream
7. Direction of stream flow

Bridges - General

All bridges with a clear span of 20 feet or more, measured along the center line of the road, shall be recorded on Form HPS-6 (see sample form) by odometer reading at the beginning of the structure. The name of the stream and the direction of flow shall also be indicated. Complete description of the bridge shall also be recorded on Form HPS-5 (see sample form) as follows:

Covered Bridge Resting on Solid Rock

This Type of Bridge Practically Extinct

1. Odometer reading at beginning of structure
2. Name of stream, highway or railroad
3. Kind of crossing, if over or under railroad
4. Load limit (posted or calculated)
5. Construction date
6. Overall length of bridge along center line of road
7. Clear span or spans
8. Type of substructure for each span, whether piers, abutments, pile or frame bents, or columns, and the kind of material
9. Type of superstructure for each span, whether truss (name), girder (beam or stringer), integral slab and beam, slab, arch, suspension, cantilever, or covered, and the kind of material
10. Kind of material in floor
11. Highwater mark above or below bridge floor
12. Rip rap, kind and location
13. Condition of substructure, superstructure, and floor, whether good, fair, or poor, and description of serious defects
14. Condition of paint
15. Minimum lateral roadway clearance between curbs, railings, or bridge members
16. Sidewalks, side and width
17. Distance from road surface to stream bed or top of rail
18. Distance from road surface to bottom of portal
19. Clear distance of opening above stream bed
20. Remarks as to adequacy of the opening, and as to location

of the bridge with respect to alignment and grade of the approaches

Draw Bridges

The spans on draw bridges shall be described according to the following classifications:

1. Bascule - single leaf (hand or power operated)
2. Bascule - double leaf (hand or power operated)
3. Vertical lift (hand or power operated)
4. Rotary (hand or power operated)

The type of protection at all draw bridges shall also be described, using the same classification, listed on Form HPS-4 (see sample form), as is used for railroad crossings.

Toll Bridges

Additional information shall be obtained on all toll bridges as follows:

1. Name of owner
2. Name and address of principal officer
3. Schedule of toll rates

Ferries

The following information shall be secured on all ferries as they are encountered on road inventory:

1. Name of river
2. Estimated width of stream at low water
3. Capacity of boat (passenger automobiles)
4. Motive power (hand or power)
5. Number of scheduled round trips in 24 hours
6. Hours of service each day
7. Whether toll or free
8. Type of protection (see Form HPS-4 for classification)

Railroad Crossing on County Road

Visibility Completely Obstructed in Both Directions

9. Name of owner and name and address of principal officer
10. Schedule of toll rates

Railroad Crossings

All railroad crossings shall be located by odometer reading on Form HPS-6 (see sample form), but a complete description of each crossing shall be made out on Form HPS-4 (see sample form). The data to be secured shall consist of the following:

1. Odometer reading at crossing
2. Name of railroad
3. Number of nearest mile post and distance from crossing
4. Number of main line and other tracks
5. Approximate gradient of road approaches
6. Angle of crossing
7. Alignment of railroad (tangent or curve)
8. Clear view distance
9. Types of protection

Sight distances at points 300 feet from the crossing shall be noted and all sight distances over 2000 feet, as measured along the railroad, shall be considered as unlimited. The view may be greatly restricted at the 300 foot point, but may become unlimited at a point closer to the crossing. If such a condition exists, the point of greatest sight distance shall be located, and any obstructions noted on the form, giving the distance of these obstructions from the road and the railroad.

Cultural Items with Symbols

All cultural items shall be inventoried along each road, indicating by means of a small square on Form HPS-6 (see sample form) the location with respect to the road. The following

symbols shall be used in conjunction with the small square to designate the kind of item inventoried.

AP Airport

BL Airway Beacon Light

CA Community Auditorium

BP Ball Park

Barn Without Dwelling

B Business (without residence - kind)

BH Business and Home Combined

CG Cattle Guard

CP Cattle Pass

Cem. Cemetery

C Church

CG Cotton Gin

CH Court House

D Dairy

H Dwelling

FG Fair Grounds

F-1 Farm Unit (2 or more houses). Plantation, estate or farm with central dwelling and tenant dwellings on the farm.

F-2 Farm Unit (1st Class). Dwelling with moderate or large sized barn and outbuildings. A place whose general appearance indicates any phase of agriculture as the principal business.

F-3 Farm Unit (2nd Class). Rural dwelling with small acreage, generally less than five acres, with few outbuildings; appearances indicating the occupant earns living elsewhere.

FS Filling Station

FT Fire Tower

FL Fishing Lodge

GG Golf Grounds

GP Gravel Pit

I Industry (kind)

L Lake (name)

LRM Local Deposit Road Material

LC Logging Camp

M Mine (kind)

PO Postoffice

PP Public Park

RS Railroad Station

RH Resort Hotel

SM Saw Mill

SP Scenic Point

S School

TH Tenant House

TC Tourist Camp

TS Turpentine Still

V Prefix for Vacant Property

Power Lines

Transmission Lines

Telephone and Telegraph Lines

△ Triangulation Station (number)

BM Bench Mark (number and elevation)

Guard Rail

Road Classification

All roads shall be classified in spaces one to five on Form HPS-6 (see sample form), and the limits of each classification shall be indicated by arrows. This classification shall conform to the following types and shall be recorded by the numbers assigned to each type.

Space one shall be used to designate the type of grading, the type of surfacing, and the type of base. Sidewalks and curb and gutter shall also be designated in this space when a road continues through a city or town.

Types of Grading:

1. Primitive Road
2. Unimproved Road
3. Graded and Drained Road (Low Type)
4. Graded and Drained Road (Intermediate Type)
5. Graded and Drained Road (High Type)

Types of Surfacing:

10. Soil Surfaced Road
    - 11. Natural Sand Clay or Top Soil
    - 12. Sand Clay or Top Soil (+3" or -3" thickness)
    - 13. Quarry Waste (size less than ¼ inch)
    - 14. Sand Clay stabilized with Calcium Chloride
    - 15. Subgrade stabilized with Bituminous Material
    - 19. Other Types
20. Gravel or Stone Road (coarser than sand)
    - 21. Chert (+3" or -3")
    - 22. Clay Gravel (+3" or -3")
    - 23. Crushed Stone (+3" or -3")

24. Disintegrated Rock (#3" or -3")

25. Pebble Soil (#3" or -3")

26. Shell (#3" or -3")

27. Slag (#3" or -3")

29. Other Types

30. Bituminous Surface Treated (1" or less in thickness)

31. Single Surface Treatment - Slag

32. Single Surface Treatment - Stone

33. Double Surface Treatment - Slag

34. Double Surface Treatment - Stone

35. Double Surface Treatment - Slag and Stone

36. Rock Asphalt

39. Other Types (kind)

40. Mixed Bituminous Road (over 1" in thickness)

41. Road Mix in Place - Sand

42. Road Mix in Place - Gravel

43. Road Mix in Place - Stone

44. Road Mix in Place - Slag

49. Other Types (kind)

50. Bituminous Penetration Road (over 1" in thickness)

51. Penetration - Stone

52. Penetration - Gravel

53. Penetration - Slag

59. Other types (kind)

60. Bituminous Concrete or Sheet Asphalt Road (over 1" in thickness)

61. Bituminous Concrete

62. Limerock Asphalt

63. Sand Asphalt or Sand Asphalt Base

64. Sandrock Asphalt

65. Sheet Asphalt

69. Other types (kind)

70. Concrete Road

71. With expansion joints at regular intervals, no center longitudinal joint

72. With expansion joints at regular intervals and center longitudinal joint

73. Without regularly spaced expansion joints

74. Cement Bound Macadam

75. Vibrolithic Concrete

76. Concrete Road with Bituminous Surface not less than one inch thick

79. Other types (kind)

80. Brick Road

81. With Bituminous Filler

82. With Cement Grout Filler

83. With Bituminous Mat less than 1" thick

84. Other types (kind)

90. Block Road

91. Asphalt Block

92. Stone Block

93. Wood Block

94. Block Road with Bituminous Mat less than 1" thick

99. Other types (kind)

Types of Base:

1. Bituminous Concrete

2. Bituminous Macadam

3. Chert

4. Clay Gravel

5. Concrete

6. Crushed Rock

7. Limerock

8. Pebble Soil

9. Sand Clay or Top Soil

10. Shell

11. Other types (kind)

N - Sidewalks (show side and distance from center line)

O - Curb and Gutter (show side and distance from center line)

Space two shall be used to describe the general condition, the defects if any, and the drainage of the road.

Condition:

C-1 Good

C-2 Fair

C-3 Bad

Defects:

D-1 Not serious

D-2 Corrugated

D-3 Scaled

D-4 Raveled

D-5 Warped

D-6 Badly Cracked

D-7 Disintegrated

D-8 Soft Spots

D-9 Rutted

Well Maintained Secondary Road

Graded and Drained and Gravel Surfaced

Drainage:

Side Ditches

1. None
2. Incomplete
3. Complete

Cross Drains

4. None
5. Incomplete
6. Complete

Space three shall be used to designate the width order of the road, the types of soil and the topography of the section through which the road extends.

Width Order:

Surface

Roadbed (paving plus shoulders)

Right of Way

Type of Soil:

S-1 Sand

S-2 Sand Clay

S-3 Pebble Soil

S-4 Clay

S-5 Rocky

Topography:

T-1 Flat

T-2 Rolling

T-3 Hilly

T-4 Mountainous

Space four shall be used to describe the administrative system under which the road is maintained and to designate the use of the road according to route. School bus routes shall be verified by the county school superintendent and mail routes by the postmasters.

Administrative System:

SR State System (rural)

SM State System (municipal)

SF State Forest

SP State Park

SI State Institution

CR County System (rural)

FF Federal Forest

FP Federal Park

FM Federal Military

Routes:

SB School Bus

CB Common Carrier (bus)

CT Common Carrier (truck)

RFD Rural Free Delivery Route

SMR Star Mail Route

Space five shall be used for any additional descriptive information of the road.

HPS-1

STATE HIGHWAY BOARD OF GEORGIA
DIVISION OF HIGHWAY PLANNING SURVEY
IN COOPERATION WITH U. S. BUREAU OF PUBLIC ROADS

DAILY TIME AND WORK REPORT OF ROAD INVENTORY PARTY

District 1 Date Jan. 4, 193 8
County Chattooga
Zone South West
(Show Section of County)

NAME	Hours
Party Chief A. H. Stephens	8
Recorder G. A. Nellis	8
Draftsman None	
Chainman None	

ODOMETER READINGS		Time of Day
Start from Hdqts.	37629	7:45 AM
Begin Day's Work	37635	8:00 AM
End Day's Work	37683	4:30 PM
Return to Hdqts.	37691	4:45 PM

Total Miles Traveled 62
Travel Per Mile Inventoried 2.36

Hours Field Work 8
Hours Lost in Field 0
Hours Misc. Work 1

Remarks: (Explain in complete detail on back of this s
Misc. Time; Time Lost; Slow Progress; Exce
Travel)

RECORD OF ROADS INVENTORIED

Road Number	From	To	Miles Inventoried (Nearest tenth)	Remarks
27	35.42	40.04	4.6	
28	42.71	46.30	3.6	
29	48.07	52.37	4.3	
30	54.84	55.19	0.4	
31	56.54	60.87	4.3	
32	64.38	64.93	0.6	
33	67.47	72.75	5.3	
11	80.17	83.24	3.1	
		(See Back)		
TOTAL OR SUB-TOTAL			26.2	

Route to follow to arrive at first road to be inventoried next day and probable roads to be inventoried next. (Give n bers of principal roads; use back of form if necessary.)

Go west on Ga. #48 approximately 3 miles west of junction with Ga. #114. Will start on this road and run south.

Res. Address: City Summerville
Street 14 Main Street
Phone Number None
Office Address Same
Location Sketch at Same

I Certify that this Report is Correct.

A. H. Stephens
(Chief of Party)

Original, Atlanta Office; Duplicate, District Supervisor; Triplicate, Chief of Party.

RECORD OF ROADS INVENTORIED

Road Number	From	To	Miles Inventoried (Nearest tenth)	Remarks
TOTAL				

REMARKS:

Reasons for slow progress:

6 Special Bridge Sheets 210 PI's located

3 Railroad Crossing Sheets 35 Bridges between 10' and 20'

One half hour lost due to inspection visit of District Supervisor.

Roads slowly drying out, in somewhat better condition.

One hour at night devoted to making up Form HPS-8 and laying out the next day's work.

Northpoint Here

STATE HIGHWAY BOARD OF GEORGIA

DIVISION OF HIGHWAY PLANNING SURVEY

In Cooperation With United States Bureau of Public Roads

RAILROAD GRADE CROSSING SHEET

Sheet No. 1
District No. 1
County No. 027
Party No. 2
Road No. 19
Odometer Reading 36.
H.P.S. Crossing No. 368
R.R. Crossing No. 132
Date 12-31-37

Name of Railroad Central of Georgia

Number of Nearest R.R. Mile Post and Direction from Crossing C-40 (No.) 200'-S (Direction)

Number of Main Line Tracks 1

Number of Other Tracks 0

Road Approaches to R.R. Crossing
Approximate Gradient (+) or (—)

M -1 % N

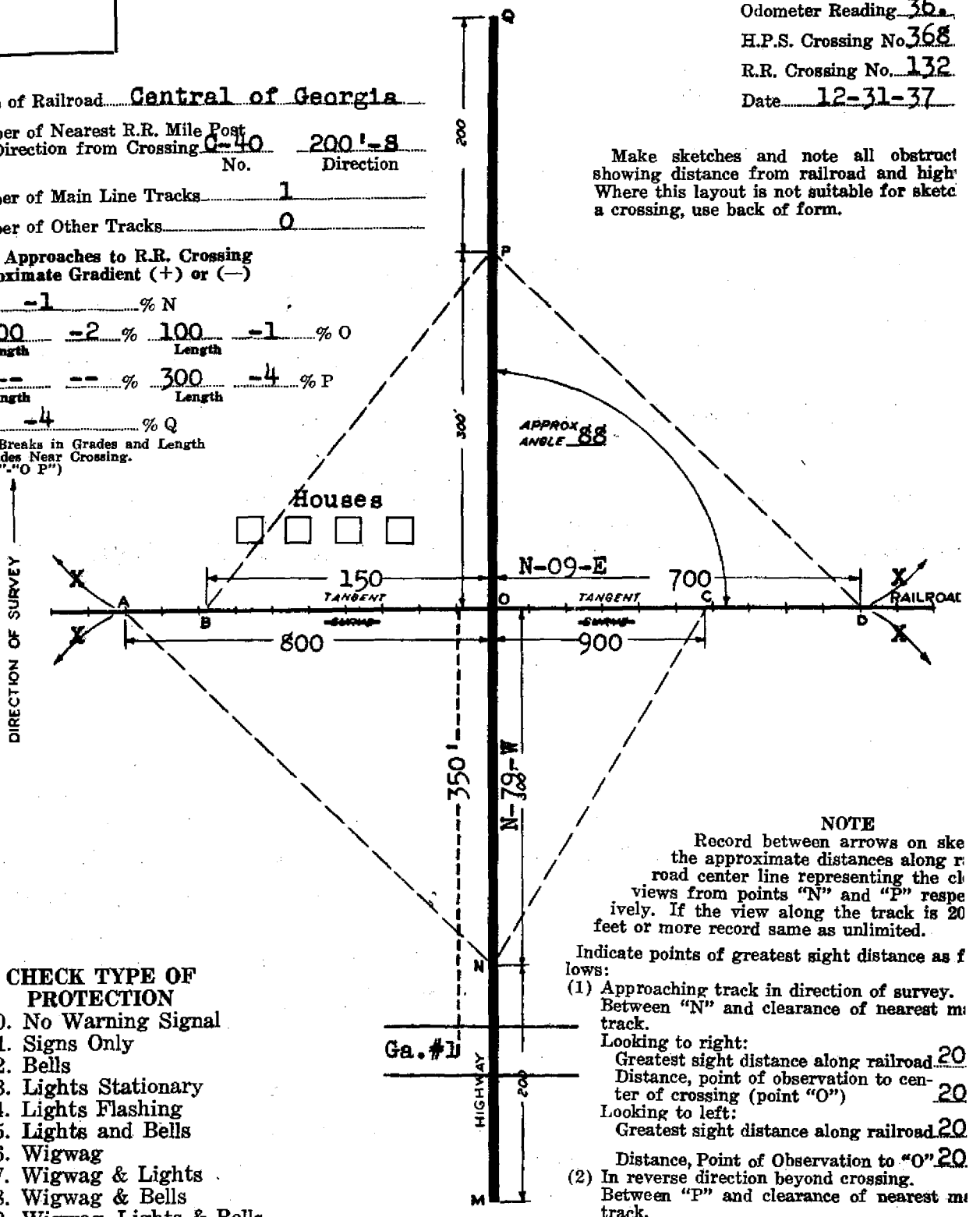
N 200 (Length) -2 % 100 (Length) -1 % O

O --- (Length) -- % 300 (Length) -4 % P

P -4 % Q

Show Breaks in Grades and Length of Grades Near Crossing. ("N O"-"O P")

Make sketches and note all obstruct showing distance from railroad and high Where this layout is not suitable for sketc a crossing, use back of form.



CHECK TYPE OF PROTECTION

- ..... 0. No Warning Signal
- X 1. Signs Only
- ..... 2. Bells
- ..... 3. Lights Stationary
- ..... 4. Lights Flashing
- ..... 5. Lights and Bells
- ..... 6. Wigwag
- ..... 7. Wigwag & Lights
- ..... 8. Wigwag & Bells
- ..... 9. Wigwag, Lights & Bells

	From	To	Total
Watchman Hours on Duty			

	Manual	Automatic
Gates		
Barriers		
Chain or Cable		
Other Protective Devices		

NOTE

Record between arrows on ske the approximate distances along r road center line representing the cl views from points "N" and "P" respe ively. If the view along the track is 20 feet or more record same as unlimited.

Indicate points of greatest sight distance as f lows:

(1) Approaching track in direction of survey.
Between "N" and clearance of nearest m track.
Looking to right:
Greatest sight distance along railroad 20
Distance, point of observation to center of crossing (point "O") 20
Looking to left:
Greatest sight distance along railroad 20
Distance, Point of Observation to "O" 20

(2) In reverse direction beyond crossing.
Between "P" and clearance of nearest m track.
Looking to right:
Greatest sight distance along railroad 20
Distance, point of observation to "O" 20
Looking to left:
Greatest sight distance along railroad 20
Distance, point of observation to "O" 20

Clearance point may be considered as 15 f measured from driver's position in car to cent of track.

Form HPS-5

STATE HIGHWAY BOARD OF GEORGIA
DIVISION OF HIGHWAY PLANNING SURVEY
IN COOPERATION WITH U. S. BUREAU OF PUBLIC ROADS

BRIDGE SHEET — ROAD INVENTORY
(See Note 2)

Dist. No. 1
County Bartow
Road No. 61
Party No. 2
Sheet No. 1

Date Nov. 11, 1937

Odometer Reading 76.15 Name of Pettit Creek
(Highway, Stream or Railroad)

Kind of Crossing (Note 1): Underpass—Simple RR No. _____: Overpass RR No. _____

Underpass—Combined RR No. _____: (Note 6) No. Tracks _____

DESCRIPTION OF STRUCTURE

Calculated Load Limit 20 T: Posted Load Limit None: Bridge No. None

Overall Length of Bridge Along Center Line of Roadway 120'

Construction Date: Unknown

SPANS		TYPE AND KIND OF MATERIAL (Timber, treated or untreated; concrete, steel, stone, rubble or brick masonry, dry rubble, etc. (See Note 4))				
		SUBSTRUCTURE		SUPERSTRUCTURE		FLOOR
No.	(Note 3) Length	Type	Material	Type	Material	Material
1	115½'	2 Abutments	Concrete	Pratt Truss	Steel	Oak Plank

For Culverts and Arches—See Note 8.

Highwater Mark _____ Ft. Above or 4 Ft. Below Bridge Floor

Rip Rap; Give kind and location: None

General Condition of Bridge: Check if Good, Fair, or Poor; Describe defects if serious.

	Good	Fair	Poor	
Superstructure	☒	☐	☐	
Floor	☐	☒	☐	Loose Planks
Substructure	☒	☐	☐	

Paint: Good X, Fair _____, Poor _____, Badly corroded or rusted _____

Clearances: Roadway (Note 5) 16'; Sidewalk widths: Right None, Left None; Surface of Road to Stream Bed 18'. (If overpass, show distance to top of rail); Surface of Road to bottom of Portal 14½' (Minimum overhead clearance); Clear distance of opening above stream bed 16½' (Waterways only).

Remarks: Opening adequate. Approach to Bridge good-Visibility for 700', Grade 0% for 550', ± 3% for 150'. Approach from Bridge bad-Curve at end of Bridge-Visibility for 200', Grade ± 8% for 200'. Steel handrail both sides.

(See Reverse Side for Notes)

Form HPS-5
(Reverse side)

BRIDGE SHEET — ROAD INVENTORY

NOTES:

1. Show kind of crossing by checking descriptive item applicable. For multiple span bridges give complete information on each span, including approach spans. If underpass or overpass, show railroad number of structure.

2. Sketch on Form HPS-6 approximate angle of structure with respect to center line of road and show direction of stream flow.

3. On arch bridges show clear span face to face abutments at spring line. On metal bridges show length of steel. Skew arch spans to be measured at right angles to face of abutments at spring line.

4. Show actual type construction under one of the following general types: Truss, Girder (Beam or Stringer), integral slab and beams, Slab, Arch, Suspension, Cantilever or Covered Bridge as shown in the Manual.

5. Give minimum lateral clearance. Where traffic lanes are separated by bridge members, show width of each lane separately.

6. Give information on the span over the highway only.

7. Under remarks give notation of "Adequacy" or 'Inadequacy" of bridge opening.

8. For multiple span culverts show number of units and length of each under "Spans." Show "Type and Material" under substructure and total length of bridge in place provided. For arches fill in all items applicable.

FORM HPS 6

DISTRICT 1 (NUMBER) COUNTY Polk (NAME) 115 (NO.)

SCALE 4 in. = 1 mile MILES THIS SHEET 8.52

ROAD NUMBERS 1 (COUNTY) 1 (STATE) 27 (U. S. ROUTE)

DRAWN BY W.F.D CHECKED BY H.R.J. REVISED (DATE)

SURVEYED BY H. L. Holley (CHIEF OF PARTY) O. Brimberry (RECORDER)

CHECKED BY DISTRICT SUPERVISOR H. R. Jacobson

DATE Dec. 9, 1937

SHEET 1 OF 1 SHEETS

PAGE NO. 5

SIGHT DISTANCE | DISTANCE | GRADE | HORIZONTAL CURVATURE | ALIGNMENT P.C. - P.I. - P.T. BEARINGS AND ODOMETER READINGS | CLASSIFICATION SPACES

CLASSIFICATION SPACES: 1 Rd. #1-South from Cedartown; 2 SR-SB-CB-CT-RFD; 3 20-30-80-S4-T2; 4 C1-3-; 5 S-70-

ALIGNMENT P.C. - P.I. - P.T. BEARINGS AND ODOMETER READINGS:

- 91.91 Rd. #1 = 98.31 Rd. #6
- 92.13 Rd. #1 28.15 Rd. #10
- 92.37 Rd. #1 70.12 Rd. #100
- 92.70 Rd. #1 73.46 Rd. #102
- 93.01 Rd. #1 10.71 Rd. #9
- 93.69 Rd. #1 79.53 Rd. #112
- 94.08 Rd. #1 93.75 Rd. #69
- 94.12 Rd. #1 74.87 Rd. #103
- 94.27 Rd. #1 48.83 Rd. #79
- 94.72 Rd. #1 75.56 Rd. #104
- 95.36 Rd. #1 37.03 Rd. #78
- 95.91 FAP #242-N
- 95.47 (F) S-45-E Pi-Rt.
- 95.08 (F) S-10-E Pi-Rt.
- 94.55 (F) S-17-W Pi-Lt.
- 94.25 (F) S-04-W Pi-Rt.
- 94.16 94.12 94.10
- 94.08
- 93.69
- 93.37 (F) S-18-W Pi-Lt.
- 93.06 93.01
- 92.90 (F) S-03-E Pi-Lt.
- 92.78 92.70
- 92.56
- 92.42 92.37 92.35 (F) S-14-E Pi-Rt.
- 92.13 92.12
- 92.07
- 91.91 (F) S-0-0

Rd. #6 N-05-E; Begin Rd. #1; Rd. #6 W-0-0; Rd. #10 E-0-0; Rd. #100 W-0-0; Rd. #102 W-0-0; Rd. #112 N-72-W; Rd. #69 S-58-E; Rd. #79 N-75-E; Rd. #103 S-43-W; Rd. #104 N-87-W; Rd. #78 S-18-W; Rd. #9 S-32-E; Rd. #1 E-0-0; Rd. #1 N-0-0; Rd. #1 S-0-0; Rd. #1 N-0-0; Rd. #1 S-0-0; Rd. #1 N-0-0; Rd. #1 S

HPS-8

STATE HIGHWAY BOARD OF GEORGIA
DIVISION OF HIGHWAY PLANNING SURVEY
IN COOPERATION WITH U. S. BUREAU OF PUBLIC ROADS

Dist.No. 1
Party No. 1

COORDINATE SHEET

Date Dec. 9, 192

dometer Correction
ctor 0
oad No. Ga.1, US 27 County Polk Location South from Cedartown
qualities: 591.91 Beg. Road No. 1 498.31 Road No. 6
600.43 End Road No. 1 600.43 Road No. Haralson Co. Line

Sta.	(1) Odometer	(2) Distance	(3) Bearing	Latitude (4) +	Latitude (4) —	Latitude (4) Total	Departure (5) +	Departure (5) —	Departure (5) Tot
0	591.91								
1	92.35	.44	S-0-0		44	- 44			
2	92.90	.55	S-14-E		53	97	13		∠ 1
3	93.37	.47	S-03-E		47	144	2		1
4	94.16	.79	S-18-W		75	219		24	-
5	94.55	.39	S-04-W		39	258		3	1
6	95.08	.53	S-17-W		51	309		16	2
7	95.47	.39	S-10-E		38	347	7		2
8	95.68	.21	S-45-E		15	362	15		
9	96.16	.48	S-77-E		11	373	47		∠ 1
10	96.30	.14	S-55-E		8	381	11		4
11	96.62	.32	S-33-E		27	408	17		6
12	97.00	.38	S-13-E		37	445	9		1
13	97.20	.20	S-0-0		20	465			1
14	97.70	.50	S-18-W		48	513		15	6
15	98.12	.42	S-03-E		42	555	2		6
16	98.80	.68	S-30-E		59	614	34		9
17	99.21	.41	S-08-E		41	655	6		10
18	99.46	.25	S-05-W		25	680		2	10
19	99.69	.23	S-15-E		22	702	6		10
20	99.90	.21	S-42-E		16	718	14		12
21	600.43	.53	S-27-E		47	-765	24		∠ 14
22									
23	Intersecting Road Equalities:								
24	592.13 Rd. #1 =	28.15 Rd. #10		95.36 Rd. #1 =			37.03 Rd. #78		
25	92.37	70.12	#100	96.46			23.10		#11
26	92.70	73.46	#102	97.41			90.20		#10
27	93.01	10.74	#9	98.12			25.06		#11
28	93.69	19.53	#112	98.80			98.11		#11
29	94.08	93.75	#69	99.41			26.36		#11
30	94.12	74.87	#103	99.80			06.88		#11
31	94.27	48.83	#79	600.12			08.62		#11
32	94.72	75.56	#104						
33									
34	Triangulation Stations:								
35									
36	#19A-50	44' W of CL at 94.25							
37									
38	#19A-46	22' W of CL at 99.42							
39									
40									
TOTAL		8.52		---	765	-765	207	60	∠ 14

Columns 1, 2 and 3, and (+) and (—) of 4 and 5 computed by: H. L. Holley (Party Chief)
Checked by: W. F. Davis (Field Draftsman)

Columns 4 and 5 computed by: W. F. Davis (Field Draftsm
Checked by: H. R. Jacobson (Supervisor)

Form HPS-200

STATE HIGHWAY BOARD OF GEORGIA
DIVISION OF HIGHWAY PLANNING SURVEY
In Cooperation with U. S. Bureau of Public Roads

ODOMETER CORRECTION FACTOR

O. T. Ray, State Director
Highway Planning Survey
305 Bona Allen Building
Atlanta, Georgia

Attention Assistant Director in Charge of Road Inventory

This is to certify that the odometer in the Chevrolet (Kind of Car)
bearing Georgia (State) license number 3598-C 1938
owned by H. L. Holley and operated by H. L. Holley
has been tested and in my opinion is in a satisfactory condition for field use
in connection with the Road Inventory.

Odometer Check

Description of Location of Test Run FAP #34-Haralson County, traveling East on US #78, Ga. #8 from FAP marker in Bremen to FAP marker on the Haralson-Carroll County Line.

Measured Distance		5.648 Miles
Odometer Distance		5.65 Miles
Odometer Error	(+ or -)	0.00 Miles
Error - percent	(+ or -)	0.00 Percent
Correction Factor		0.00
Rear Tire Pressure		32 Lbs.

Remarks: New concrete road. Same test run made by the District Supervisor in opposite direction with the same results.

Date January 21, 1938

Supervisor Herbert R. Jacobson

District #1 - Cartersville

Original to Atlanta Office
Duplicate to District Supervisor
Triplicate to Chief of Party

INVENTORY TAG

FRONT

WARNING

PENALTY FOR DISTURBING THIS TAG

—•—

STATE HIGHWAY BOARD OF GA.
Division Of Highway Planning
Survey in Cooperation with

U. S. BUREAU of PUBLIC ROADS

Road No.	10
Odometer Reading	28.15
Direction Traveling	E-O-O
Zone No.	3
Party No.	1
Date	12-10-37
Time	10:05
Intersection Road No.	1-South
Odometer Reading	92.13

Begin Road No. 10

BACK

Drafting

Map Series

The data secured by road inventory parties is so complete in detail that it is possible to construct a series of maps which will give to us the first true picture of our entire transportation system throughout the nation. Analysis of this series will not only give us a basis for future highway construction, but will also provide us with the means of routing all types of traffic. The latter factor alone will be of vital importance because of the effect it will have on accident control and also because it will permit us to economize and unify our entire distribution system.

The kind of maps recommended for counties and states are as follows:

County Series:

1. Base Map
2. General Highway and Transportation Map
3. Bus and Truck Map
4. School Bus Route Map
5. Postal Route Map

State Series:

1. Base Map
2. Highway Map
3. Transportation Map

Each type of map should contain the following information:

County Series:

Base maps should show:

1. State, county and township boundaries and names

2. Congressional or U. S. survey township and section lines, where actually established by survey
3. Boundaries of all Federal, State, and local parks and reservations with name and class of each
4. Corporate limits of all cities
5. Geographic and city center of all cities and villages
6. Names of all cities and villages
7. All bays, lakes, rivers, canals and important minor drainage with names
8. All main drainage and irrigation ditches
9. All railroads and railroad stations in rural areas and within cities, with name of operating companies
10. All rural roads, plotted as open bands
11. Federal and State highways only, plotted as open bands, through incorporated cities
12. Projection of main roads beyond county lines, indicating nearest important town
13. All important highway bridges, indicating the type
14. All railroad crossings, indicating grade crossings, underpasses and overpasses
15. All cultural items inventoried in rural areas
16. The population by figures of all urban places with a population of 1000 or over
17. Names of adjoining counties and bordering states

General highway and transportation maps should show, superimposed upon the base map features, the following information:

1. Surface types, by symbol, of all roads carried on base maps

2. By symbols, navigable waters and waters actually navigated for public commercial transportation
3. All commercial and other airports by symbol and name
4. The numbers of all roads designated as U.S. highways and as State routes
5. By the letters FAS, all roads included in the approved Federal Aid Highway System
6. The slope distance in miles, and tenths of miles, between the following points:
   (a) Between the center of incorporated places and their corporate limits
   (b) Between corporate limits and the nearest significant highway intersections
   (c) Between centers of small towns and villages and the nearest significant highway intersections
   (d) Between significant highway intersections in rural territory
   (e) Between county seats and all cities and towns of 1000 population or more via the shortest and best route

Bus and truck maps should show, superimposed upon the base map features, all U.S., State, and Federal-Aid Highways; and by symbols, all roads used by:

1. Public bus lines
2. Common carrier truck lines
3. Both public bus lines and common carrier truck lines

School bus maps should show, superimposed upon base map features, all U.S., State, and Federal-Aid Highways, and by symbols, all roads used by school buses.

Postal route maps should show, superimposed upon base map features, all U.S., State, and Federal-Aid Highways, and by symbols, all roads used by:

1. Rural Free Delivery mail routes
2. Star Mail routes

State Series:

The base map should carry the following information:

1. County lines
2. Federal and State reservations
3. Cities and towns at junctions of U.S., Federal-Aid, State, and important secondary highways, county seats and other towns on routes between main road intersections
4. All principal drainage with name
5. U.S. numbered highways, Federal-Aid, and State highway systems, and all important county or local roads, by open bands, without indication of class or surface type
6. Railroads without name of operating companies
7. Each degree of latitude and longitude represented by fine lines
8. Names of adjoining states
9. Names of adjoining counties in bordering states

The highway map should show, superimposed upon the features of the base map, the following additional features:

1. The surface type of all shown roads, by symbol within road bands
2. Numbers of all roads designated as U.S. Highways
3. Numbers of all roads designated as State Routes

4. Designation of Federal-Aid highways by use of the letters FAS
5. Slope distance, to the nearest mile, between cities and villages of 1000 population or more

The transportation map should show, superimposed upon features of the base map, additional information as follows:

1. The use of roads, by symbols within the open bands, as:
   (a) Public bus routes
   (b) Common carrier truck routes
   (c) Combined public bus and common carrier truck routes
2. Names of railroad operating companies
3. Commercial air routes and public and commercial airports
4. Navigable waterways, including canals, indicating those used commercially
5. U.S., State, and Federal-Aid highways

Drafting Proceedure

All roads shall be plotted by field draftsmen, upon completion of inventory in each county, to the scale of one or two inches to the mile, depending upon the size of the county. This plotting shall be done upon hard plates upon which have been drawn mercator grid lines and upon which have been located and numbered all triangulation stations within the county, adjacent to either primary or secondary roads. Since the road inventory party chief has a complete description of all triangulation stations within each county, he can definitely locate a station

near roads being inventoried with respect to each road. These stations can then be located upon the grid plate by the field draftsman by means of X and Y coordinates. The triangulation stations thus established shall be used as control points in plotting the entire road system of a county.

All plotting of roads shall conform to a maximum error of closure of 5%; based upon the ratio of overrun or underrun distance of closure with the tie-in point to the total road mileage. This error of closure is generally too great since an experienced and careful party chief should be able to tie in road intersections within the limits of 1% or 2% error.

The draftsman shall begin plotting in each county by selecting such roads as are tied into triangulation stations, and making adjustments between these stations in order to establish the correct location of the road situated between triangulation stations. Once these roads have been adjusted, every point on them will become a control point. When the control roads have been definitely established, the other roads shall be plotted in their true position by making the necessary adjustments with respect to the various control roads.

Plotting is done by the latitude and departure method directly from the data compiled on Form HPS-8 (see sample form). The total columns on these forms for the latitude and departure of each point shall not be filled in until the extremities of the road have been plotted to ascertain whether or not an adjustment is necessary to correct for error of closure. If the error of closure is found to be very small, the adjustment shall be made by adding or subtracting one hundreth to or from each of

the longest courses in either latitude or departure as the case may be. If the error of closure is greater, a mathematical adjustment shall be made as exemplified on the sample Form HPS-8 following this section. Data on this form indicates that the compass needle has been deflected to the north and west, probably by some local attraction, which requires that the latitudes and departures be adjusted in order that bearings may be corrected to their true position.

All roads must be so plotted that they tie in at the county line with the same road which has been inventoried in the adjoining county. The controlling factor in this case will be the scale distances of the end point on the road from the nearest mercator grid lines.

After the entire road system of a county has been plotted and checked, all road structures and cultural items on each road shall be plotted upon the grid plates from the information noted on Form HPS-6, using the designated standard symbol for each item (see standard symbol plate). After all information has been included on these grid plates, tracings shall be made for the various types of maps previously described under the county and state series. Samples of these maps are shown at the end of this section.

Form HPS-8

STATE HIGHWAY BOARD OF GEORGIA
DIVISION OF HIGHWAY PLANNING SURVEY
IN COOPERATION WITH U. S. BUREAU OF PUBLIC ROADS

Dist. No. 2
Party No. 1

COORDINATE SHEET

Date Oct. 27, 19

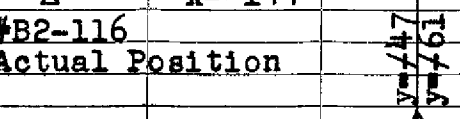
Odometer Correction Factor 0

Road No. 34 County Rockdale Location South of Conyers

Equalities: 84.00 Beg. Road No. 34 14.63 Road No. 56

88.47 End Road No. 34 29.16 Road No. 86

Sta.	(1) Odometer	(2) Distance	(3) Bearing	Latitude (4) +	Latitude (4) —	Latitude (4) Total	Departure (5) +	Departure (5) —	Departure (5) To
0	84.00								
1	84.35	.35	N-05-E	35		∠ 34	3		∠
2	84.60	.25	N-02-E	25		58	1		
3	84.95	.35	N-25-W	32		89		15	- 1
4	85.20	.25	N-10-W	25		113		4	1
5	85.38	.18	N-45-E	13		125	13		
6	85.68	.30	N-02-E	30		154	1		∠
7	86.05	.37	N-40-W	28		181		24	- 2
8	86.50	.45	N-70-W	15		195		42	6
9	86.72	.22	S-70-W		8	187		21	7
10	87.02	.30	S-65-W		13	173		27	10
11	87.37	.35	S-68-W		13	160		32	13
12	87.52	.15	S-30-W		13	146		8	13
13	87.75	.23	S-10-W		23	122		4	14
14	88.05	.30	S-05-E		30	91	3		14
15	88.25	.20	S-01-W		20	70		0	14
16	88.47	.22	S-10-W		22	∠ 47		4	- 14
17									
18	Triangulation Stations:								
19	#B2-118 at 84.00			#B2-116 at 88.47					
20									
21	Method of Correction:								
22	Step 1-:					Step 4-:			
23	4.47 x .05 = .22					2.03 ∠ 1.42 = 3.45			
24	Step 2-:					14/345 x Individual Lat. =			
25	2.03 - 1.42 = ∠.61					Individual Correction			
26	1.81 - .21 = -1.60					∠ Lat. corrected -			
27	Step 3-:					- Lat. corrected ∠			
28									
29	Plotted Position					.21 ∠ 1.81 = 2.02			
30	#B2-116					16/202 x Individual Dep. =			
31	△ x=-160					Individual Correction			
32	└-△ x=-144					∠ Dep. corrected ∠			
33	#B2-116					- Dep. corrected -			
34	Actual Position								
35						Step 5-:			
36						(∠.61) - (-.14) = ∠.47			
37			#B2-118			(-1.60) - (∠.16) = -1.44			
38									
39									
40									
TOTAL				203	142	∠ 47	21	181	- 14



Columns 1, 2 and 3, and (+) and (—) of 4 and 5 computed by: _____ (Party Chief)

Checked by: _____ (Field Draftsman)

Columns 4 and 5 computed by: _____ (Field Draftsm

Checked by: _____ (Supervisor)

LEGEND FOR COUNTY BASE MAP SERIES

ROADS

PRIMITIVE ROAD

OTHER ROADS

ROAD SYSTEM DESIGNATION

UNITED STATES HIGHWAY

STATE HIGHWAY SYSTEM

RAILWAYS

RAILROAD ANY NUMBER OF TRACKS USED BY SINGLE OPERATING COMPANY

RAILROAD (ANY NUMBER OF TRACKS) USED BY MORE THAN ONE OPERATING COMPANY ON SAME OR ADJACENT RIGHTS OF WAY NOT TRACKAGE RIGHTS

NARROW GAGE RAILROAD

ELECTRIC INTERURBAN OR SUBURBAN RAILROAD

RAILROAD - STANDARD GAGE PRIVATELY OWNED

RAILROAD - NARROW GAGE PRIVATELY OWNED

RAILROAD - SERVICE ABANDONED TRACK RETAINED

RAILROAD ON STREETS OR ROADS

ELECTRIC RAILROAD ON STREETS OR ROADS

GRADE CROSSING

RAILROAD ABOVE - UNDERPASS

RAILROAD BELOW - OVERPASS

RAILROAD STATION

RAILROAD TUNNEL

RAILROAD BRIDGE

DRAINAGE

NARROW STREAM OR CREEK

WIDE STREAM OR RIVER

DRAINAGE DITCH

IRRIGATION DITCH

CANAL

CANAL

BRIDGES

HIGHWAY BRIDGE NARROW STREAM

HIGHWAY BRIDGE WIDE STREAM

DRAWBRIDGE

SUSPENSION

ARCH

TRUSS (W. WOOD S. STEEL G. GIRDER)

W

STRUCTURES

DAM

DAM WITH ROAD

DAM WITH LOCK

LEVEE

LEVEE WITH ROAD

FORD

NATURAL FEATURES

4768

PROMINENT ELEVATION (NUMERALS INDICATE FEET ABOVE SEA LEVEL)

PASS

SCENIC POINT

WATERFALL

WATERWAYS

OPERATED SHIP OR BARGE LINES ON NATURAL STREAMS

WHARF DOCK PIER OR LANDING

N

NAVIGABLE STREAMS (IN FACT)

HEAD OF NAV.

HEAD OF NAVIGATION (SMALL STREAM)

HEAD OF NAV.

HEAD OF NAVIGATION (DEEP WATER)

T.F.

FERRY (T.F. TOLL FERRY F.F. FREE FERRY)

"PORT OF ENTRY"

INTERNATIONAL PORT OF ENTRY

(CONTINUED)

PARKS AND OTHER RESERVATIONS

NATIONAL PARK : STATE PARK
NATIONAL FOREST
STATE FOREST
NATIONAL MONUMENT
MILITARY RESERVATION

MONUMENTS – SMALL

MUNICIPAL PARKS

BIRD SANCTUARIES

GAME FARMS

GAME PRESERVES

FISH HATCHERY

FORT

CAMP GROUNDS

TOURIST CAMP

CEMETERY

RECREATION AREAS

INTENSIVE RECREATION AREAS

GOLF GROUNDS

FAIR GROUNDS
RACE COURSES ETC.

PICNIC GROUNDS

PLAY GROUNDS : BALL PARKS

BATHING BEACHES

FISHING AREAS

CITY AND VILLAGE CENTERS

STATE CAPITAL

COUNTY SEAT

INCORPORATED CITY OR VILLAGE (FIGURES INDICATE 1930 POPULATION)

1450

OTHER CITIES AND VILLAGES

BOUNDARIES

STATE

COUNTY

MILITIA DISTRICTS

CORPORATE LINES

DWELLINGS

IN USE	VACANT	
■	□	FARM UNIT
◪	▨	DWELLING OTHER THAN FARM
▬	▭	ROWS OR GROUPS OF DWELLINGS CLOSELY SPACED
◣		SEASONAL DWELLINGS
♠	⌂	FRESH AIR FARMS OR REST HOMES

COMMERCIAL ESTABLISHMENTS

STORE OR SMALL BUSINESS ESTABLISHMENT

HOTEL

FACTORY OR INDUSTRIAL PLANT

POWER PLANT

SEASONAL INDUSTRY

SAWMILL – STATIONARY

FRUIT PACKING PLANT

TURPENTINE STILL

MINE

GRAVEL PIT

QUARRY

TANKS

WSB RADIO STATION

GAS STATION

SCHOOLHOUSE OR OTHER EDUCATIONAL INSTITUTION*

CHURCH OR OTHER RELIGIOUS INSTITUTION*

COMMUNITY AUDITORIUM

HOSPITAL

CORRECTIONAL INSTITUTION*

POST OFFICE*

STATE POLICE SUBSTATION

C.C.C. CAMP

PUMP HOUSE

*FOR IMPORTANT INSTITUTION GIVE NAME

(CONTINUED)

AIRWAYS


ARMY NAVY OR MARINE CORPS FIELD


DEPARTMENT OF COMMERCE INTERMEDIATE FIELD


COMMERCIAL OR MUNICIPAL FIELD


AIRPORT HOUSING FACILITIES DENOTED BY LETTER H INSIDE SYMBOL


MARKED AUXILIARY FIELD


AIRPLANE LANDING FIELD MARKED OR EMERGENCY

MISCELLANEOUS


LIGHTHOUSE


LANDMARK LIGHT BEACON

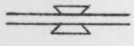

LIGHT - NAUTICAL


FOREST RANGER STATION


FOREST SERVICE LOOKOUT STATION


TRIANGULATION STATION

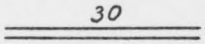

TRAVERSE STATION


CATTLE GUARD

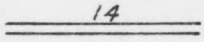

PECAN GROVE

BUS AND TRUCK SERIES

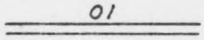
SERVICE ON HIGHWAYS



*BUS AND TRUCK LINES



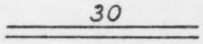
*BUS LINES ONLY



*TRUCK LINES ONLY

SCHOOL BUS ROUTE SERIES

SERVICE ON HIGHWAYS

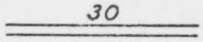


*SCHOOL BUS LINES

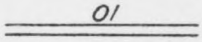
SCHOOL DISTRICT BOUNDARY

POSTAL ROUTE SERIES

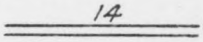
SERVICE ON HIGHWAYS



*STAR MAIL AND RURAL DELIVERY MAIL ROUTE



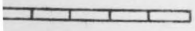
*STAR MAIL ROUTE ONLY

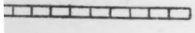


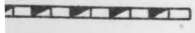
*RURAL DELIVERY MAIL ROUTE ONLY

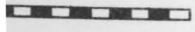
GENERAL HIGHWAY AND TRANSPORTATION SERIES

ROADS


GRADED AND DRAINED ROAD


SOIL SURFACED ROAD


METAL SURFACED ROAD


BITUMINOUS SURFACED ROAD


PAVED ROAD

ROAD SYSTEM DESIGNATION

FA — FEDERAL AID HIGHWAY SYSTEM

FAS — FEDERAL AID SECONDARY HIGHWAY SYSTEM

AIRWAYS

AIR ROUTES

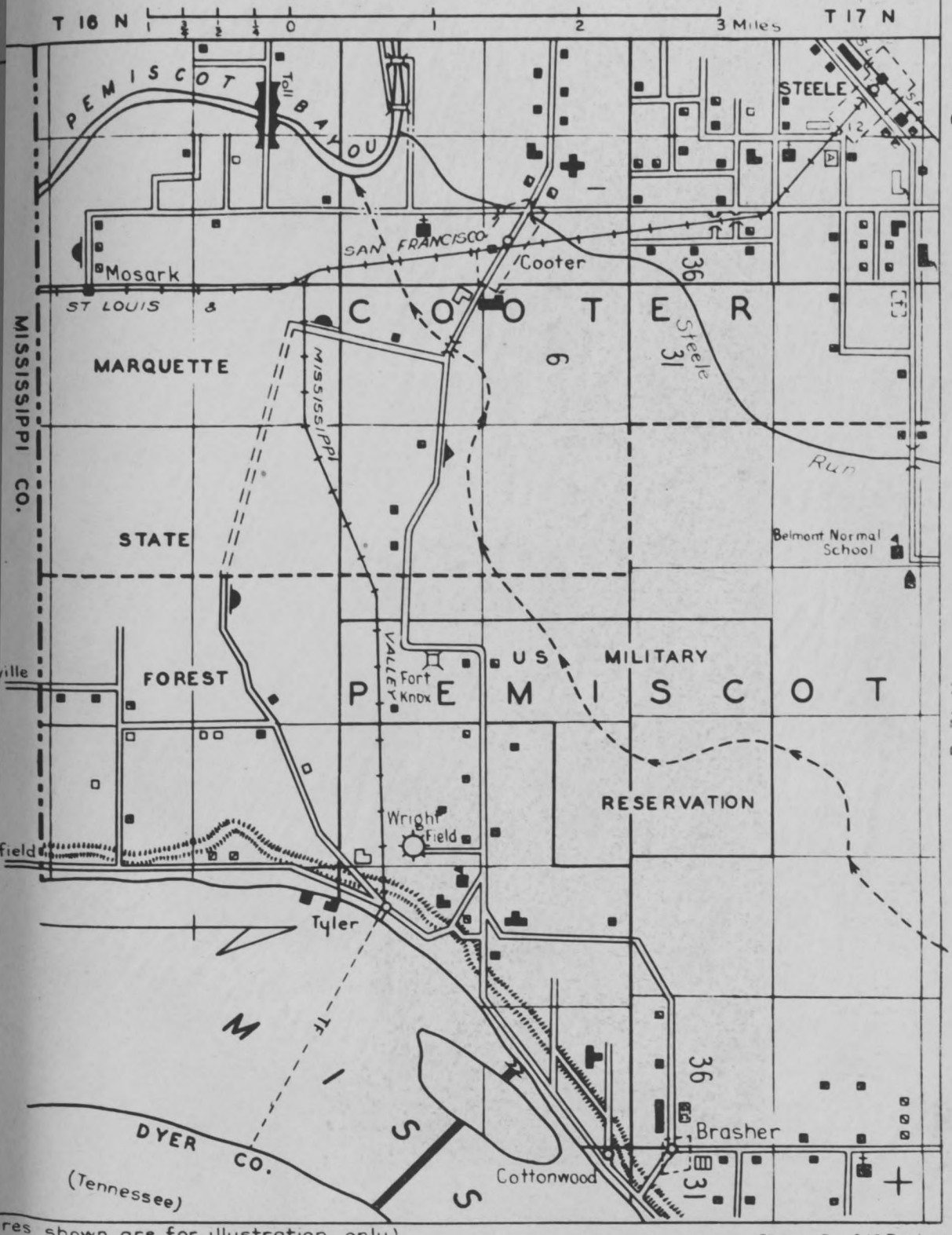
*NO. ABOVE BAND INDICATES STIPPLING TYPE TO BE APPLIED

PLATE NO. 3

STATE-WIDE HIGHWAY PLANNING SURVEY

SECTIONAL MAP OF PEMISCOT COUNTY, MISSOURI
ILLUSTRATING STANDARD SYMBOLS AND LETTERING
FOR USE ON
BASE MAP

Scale 1" = 1 mile



(Features shown are for illustration only)

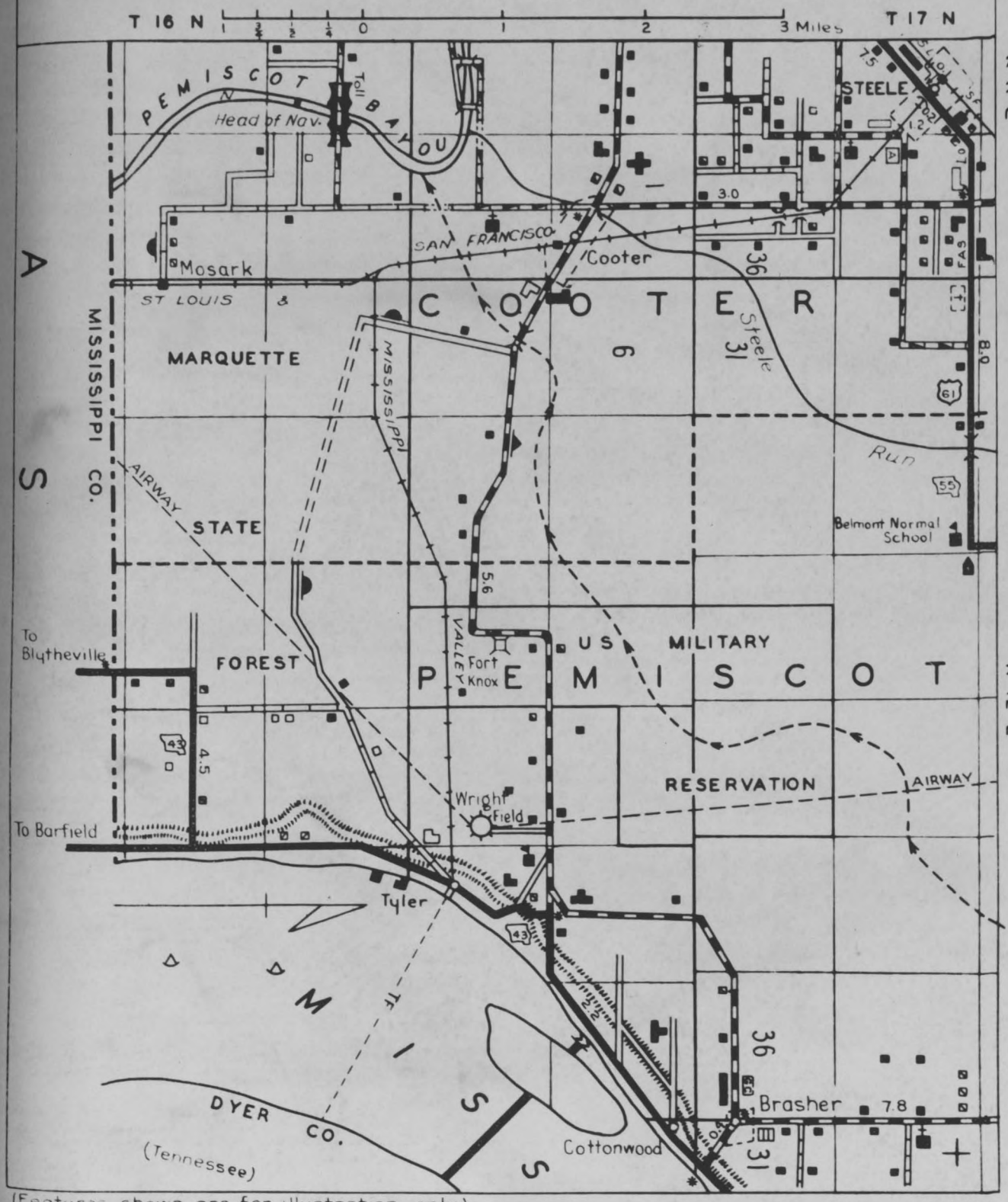
Plate 5 of 12 Plates

U.S. BUREAU OF PUBLIC ROADS - DIVISION OF HIGHWAY TRANSPORT

STATE-WIDE HIGHWAY PLANNING SURVEY

SECTIONAL MAP OF PEMISCOT COUNTY, MISSOURI ILLUSTRATING STANDARD SYMBOLS AND LETTERING FOR USE ON GENERAL HIGHWAY AND TRANSPORTATION MAP

Scale 1" = 1 mile



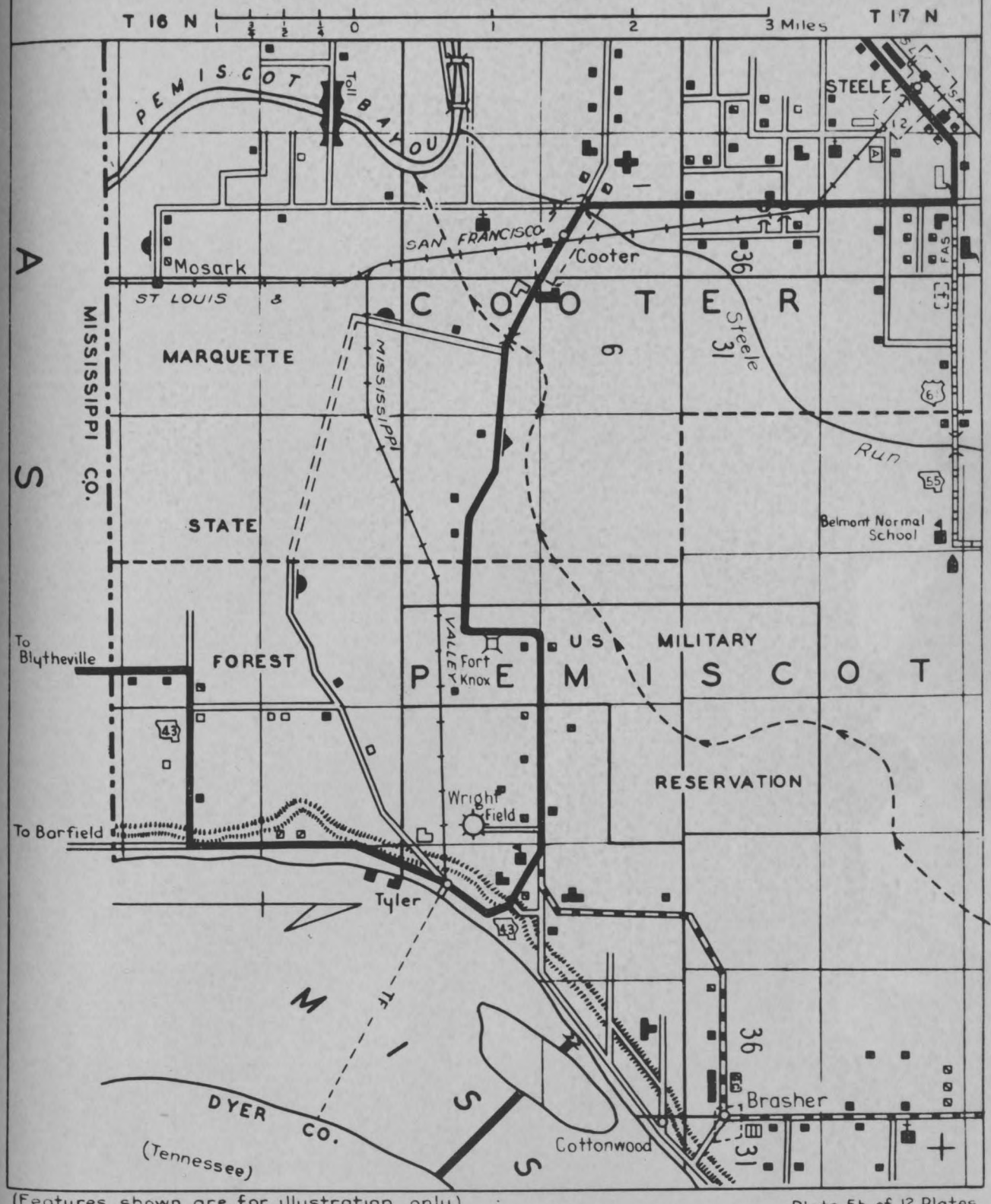
(Features shown are for illustration only)

U.S. BUREAU OF PUBLIC ROADS - DIVISION OF HIGHWAY TRANSPORT

STATE-WIDE HIGHWAY PLANNING SURVEY

SECTIONAL MAP OF PEMISCOT COUNTY, MISSOURI ILLUSTRATING STANDARD SYMBOLS AND LETTERING FOR USE ON BUS AND TRUCK MAP

Scale 1" = 1 mile



(Features shown are for illustration only)

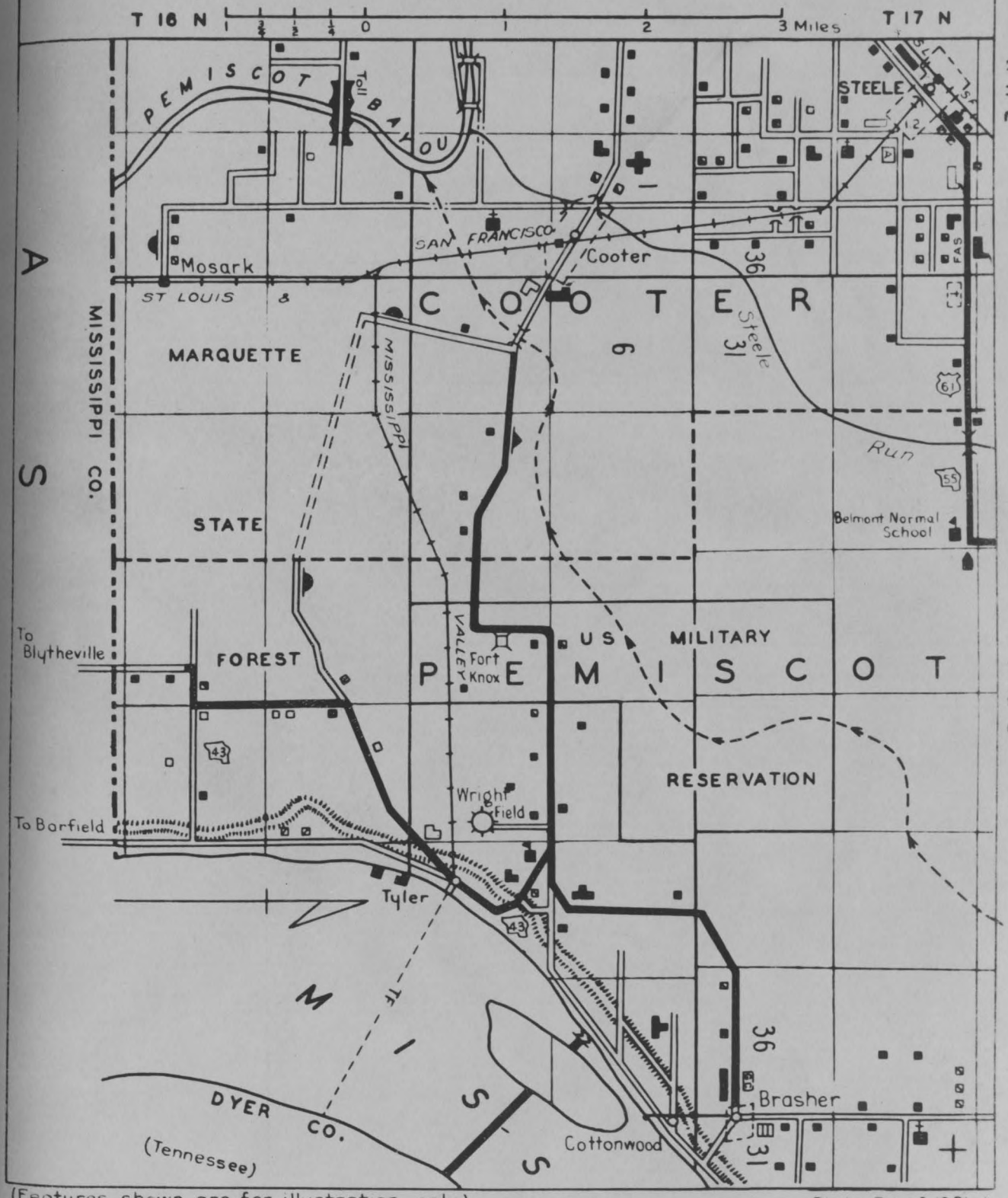
Plate 5b of 12 Plates

U.S. BUREAU OF PUBLIC ROADS - DIVISION OF HIGHWAY TRANSPORT

STATE-WIDE HIGHWAY PLANNING SURVEY

SECTIONAL MAP OF PEMISCOT COUNTY, MISSOURI ILLUSTRATING STANDARD SYMBOLS AND LETTERING FOR USE ON SCHOOL BUS MAP

Scale 1" = 1 mile



(Features shown are for illustration only)

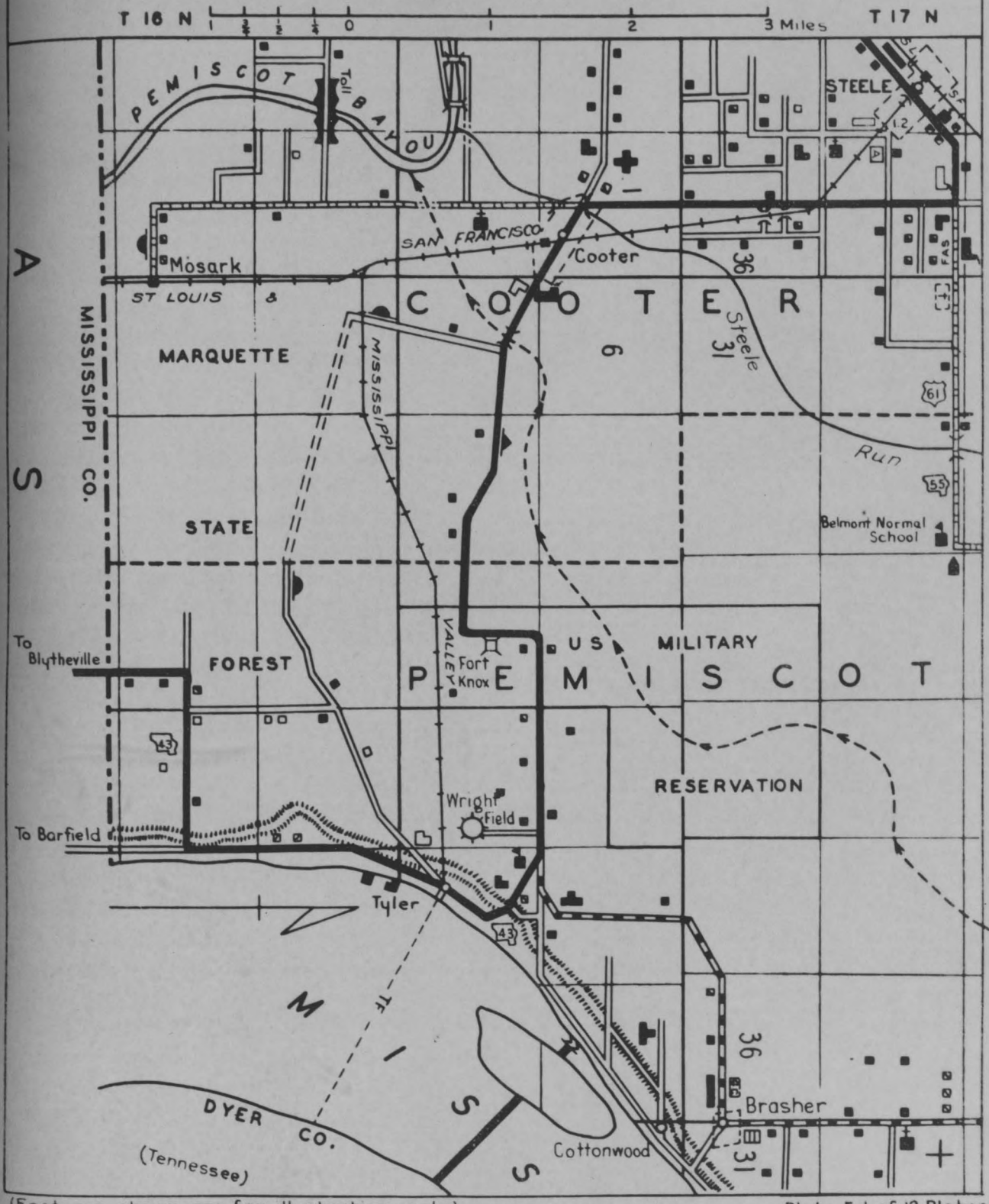
Plate 5c of 12 Plates

U.S. BUREAU OF PUBLIC ROADS - DIVISION OF HIGHWAY TRANSPORT

STATE-WIDE HIGHWAY PLANNING SURVEY

SECTIONAL MAP OF PEMISCOT COUNTY, MISSOURI ILLUSTRATING STANDARD SYMBOLS AND LETTERING FOR USE ON POSTAL ROUTE MAP

Scale 1" = 1 mile



(Features shown are for illustration only)

Plate 5d of 12 Plates

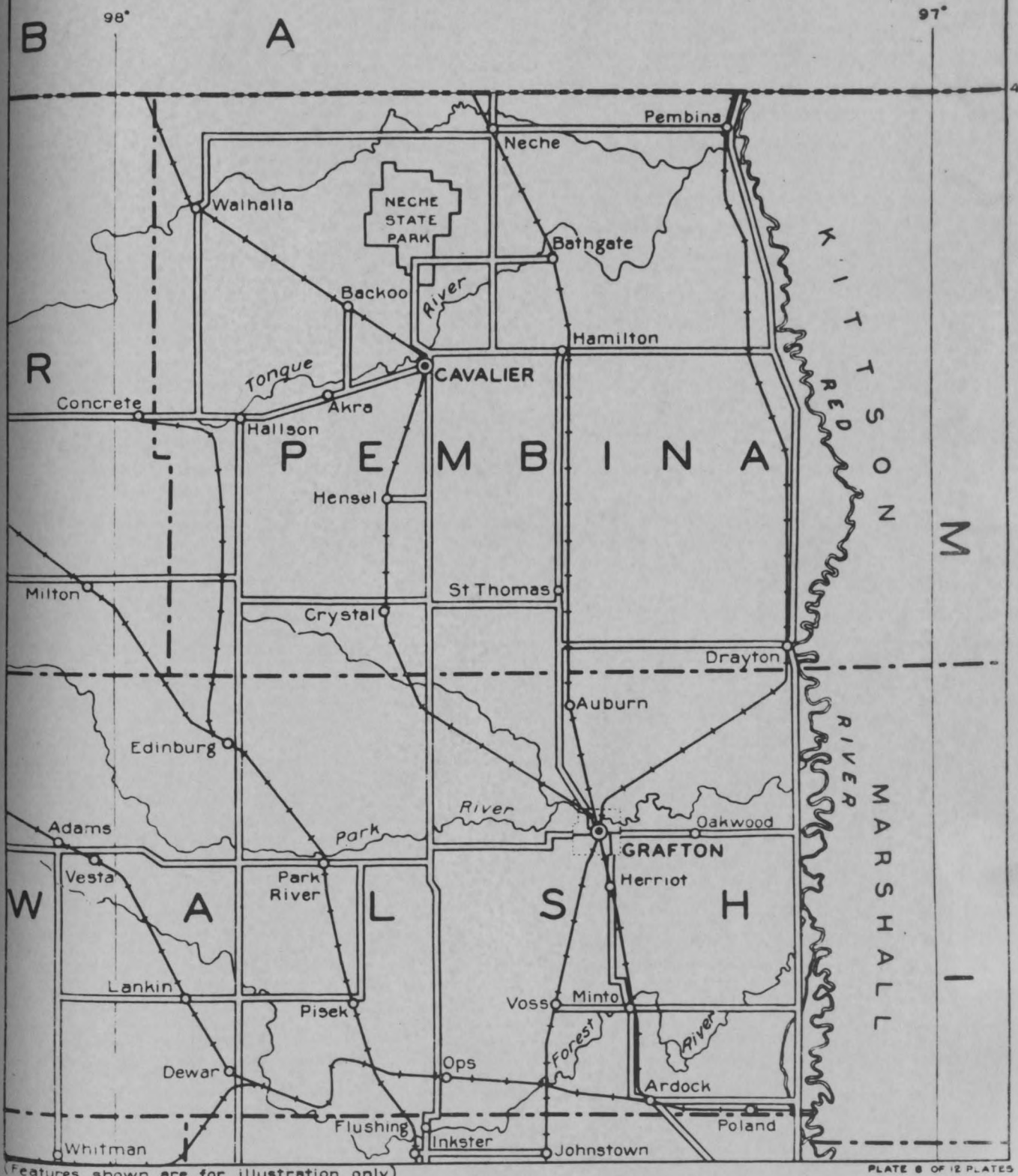
U.S. BUREAU OF PUBLIC ROADS - DIVISION OF HIGHWAY TRANSPORT

STATE-WIDE
HIGHWAY PLANNING SURVEY

SECTIONAL MAP OF NORTH DAKOTA
ILLUSTRATING STANDARD SYMBOLS AND LETTERING
FOR USE ON
STATE BASE MAP

Scale 1" = 8 miles

5 0 5 10 15 20 Miles



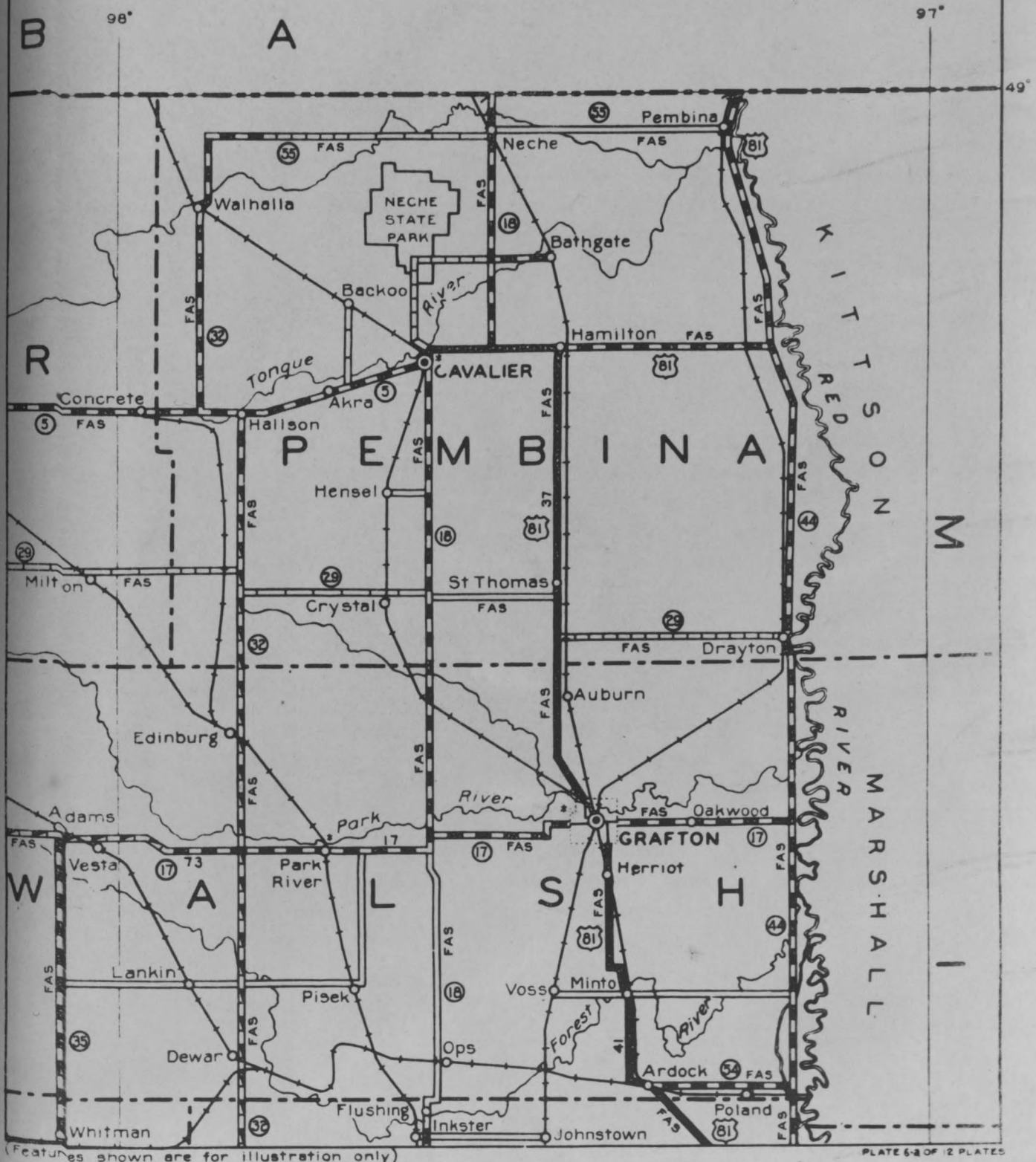
(Features shown are for illustration only)

STATE-WIDE
HIGHWAY PLANNING SURVEY

SECTIONAL MAP OF NORTH DAKOTA
ILLUSTRATING STANDARD SYMBOLS AND LETTERING
FOR USE ON
STATE HIGHWAY MAP

Scale 1" = 8 miles

5 0 5 10 15 20 Miles



(Features shown are for illustration only)

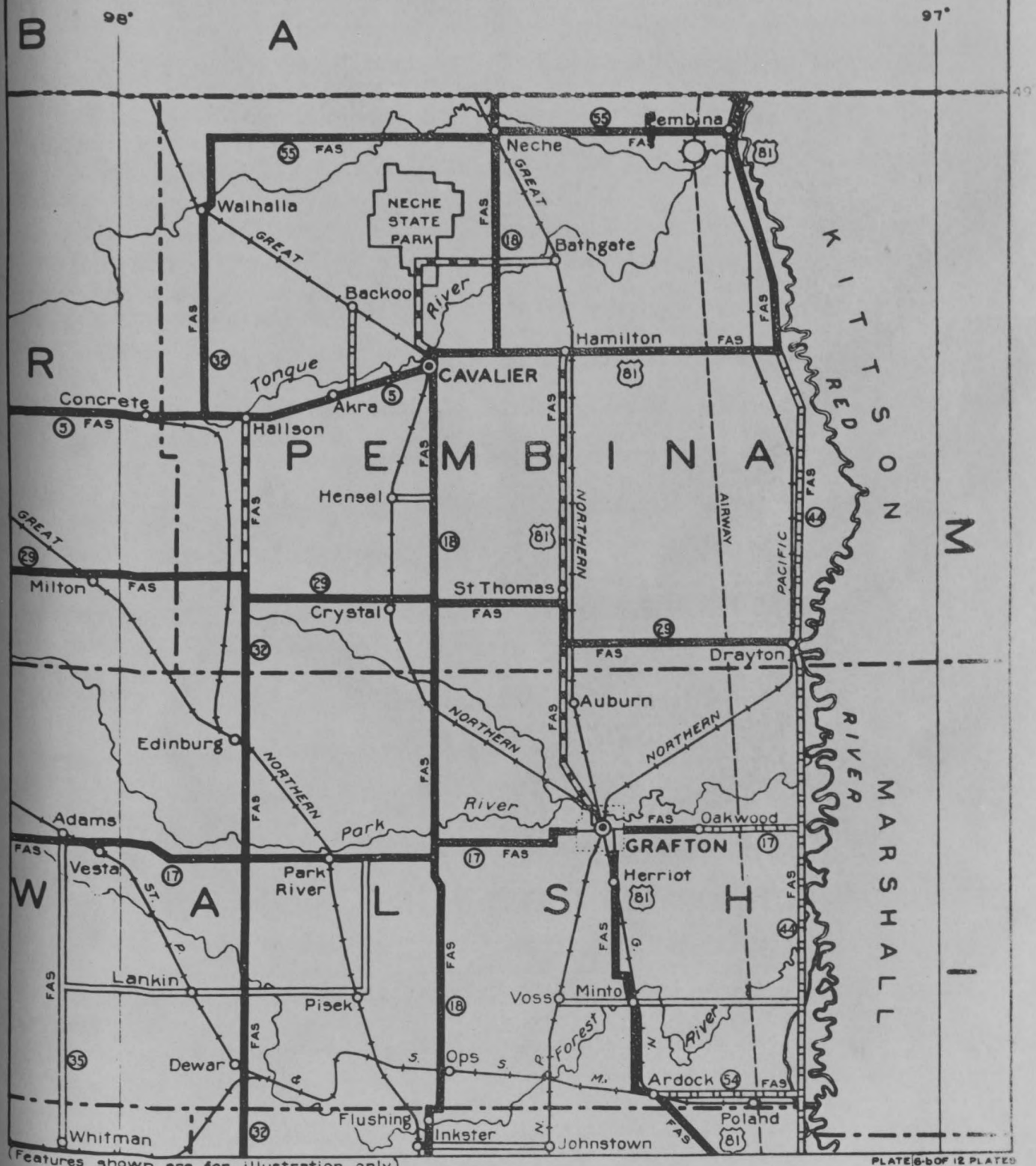
PLATE 6-2 OF 12 PLATES

STATE-WIDE
HIGHWAY PLANNING SURVEY

SECTIONAL MAP OF NORTH DAKOTA
ILLUSTRATING STANDARD SYMBOLS AND LETTERING
FOR USE ON
STATE TRANSPORTATION MAP

Scale 1" = 8 miles

5 0 5 10 15 20 Miles



(Features shown are for illustration only)

PLATE 6-b OF 12 PLATES

Sight Distance Survey

General

A study should be made in each state to obtain a complete record of all sight distances of one thousand feet and less. This study should embrace the location, length, and cause of all critical sight distances.

The party shall consist of four men travelling in two cars. The chief of party and the location recorder shall travel in the lead car, and the sight distance observer and his recorder shall travel in the rear car.

The equipment of the party shall consist of the following:

1. Closed automobile, equipped with specially mounted stadia rod, to be used as the lead car (see drawing)
2. Closed automobile, equipped with an overrunning clutch odometer graduated to hundreths of a mile and a specially mounted stadia interceptor, to be used as the rear car (see drawing)
3. Low-powered, short-wave radio set for inter-auto communications
4. County maps showing all road numbers
5. Inventory forms (see sample forms)
6. Stationery supplies
7. Three red flags for operating protection

Test runs over known or measured distances shall be made with both automobiles, as previously explained under Road Inventory. This must be done in order to establish and maintain a constant for each odometer.

Survey Proceedure

Both cars shall assemble at the starting point and make preperations to begin the survey. The hundreths odometer shall be set at zero and the reading of the standard automobile odometer shall be recorded.

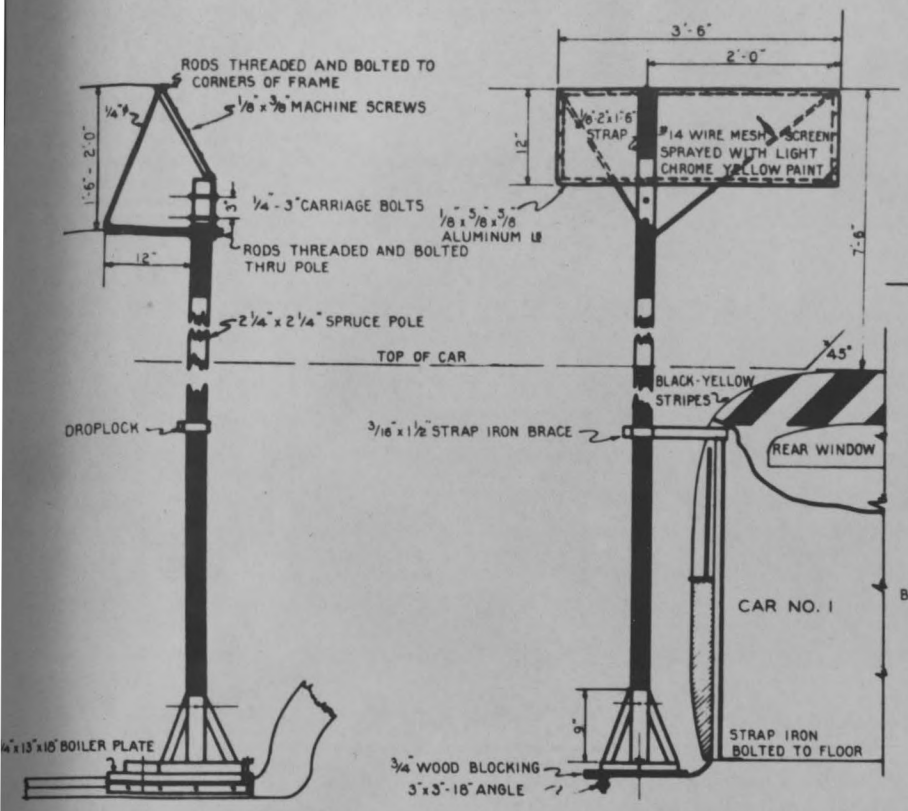
Car number one shall proceed in the direction of the survey, following the right lane of traffic. Car number two shall wait until its interceptor, using the top of car number one as zero on the stadia rod, nearly covers the stadia rod, thereby indicating an interval of about 1000 feet. Inter-auto visibility of over 1000 feet will require no record being made, but the moment this visibility is lost, sight distance measurements will be maintained by the party chief in car number one by means of the rear vision mirror. A maximum speed of 45 miles per hour may be maintained where no sight distance measurements are necessary, but 15 miles per hour shall be the maximum when it becomes necessary to measure sight distances.

Since car number one is in the lead, and can observe a curve, grade, or any other obstruction of sight distance, the operator shall slow down to 15 miles per hour, and communications by means of the short-wave radio set will determine whether forward or backward displacements of the cars are necessary to locate the point of critical sight distance. A constant stadia check by the observer in car number two will show the approximate sight distance at any point. The relation of these various checks will determine the approximate position for minimum measurements.

An odometer sight distance measurement shall then be taken

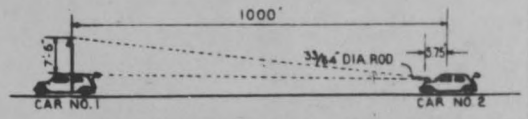
to check the stadia rod reading. Car number one shall be notified to remain stationary. The sight distance recorder shall, at the instant of inter-auto visibility, note the stadia reading and record the odometer reading to tenths, hundreths and half-hundreths. Car number two shall then proceed to car number one and upon reaching it, the recorder shall note the full odometer reading, recording this reading above the first one (see sample notes). The difference between the two odometer readings shall then be compared with the stadia reading, allowing for a permissible error of three per cent.

All normal physical road features shall be considered in the survey. Crops affecting sight distances on curves shall be located as they are encountered. Obstructions at all important road junctions which influence traffic and at railroad crossings shall be recorded in the field notes (see sample notes). The standard automobile odometer shall be read at all important road intersections, at city and county lines, as well as at the beginning and end of the route being surveyed.

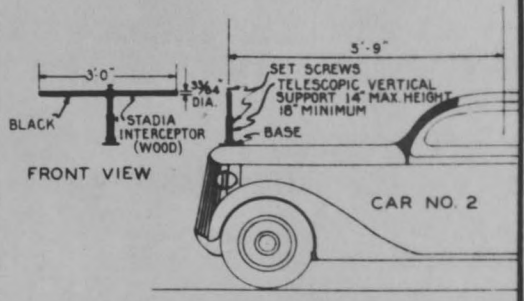


SIDE ELEVATION

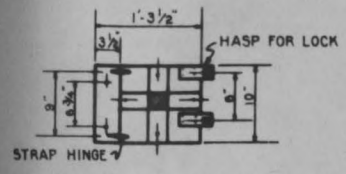
ELEVATION LOOKING FROM REAR OF CAR



SKETCH SHOWING STADIA METHOD OF MAINTAINING DISTANCE BETWEEN CARS
NO SCALE



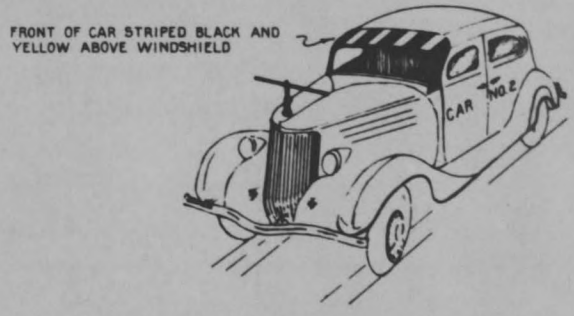
DETAIL OF STADIA INTERCEPTOR AND SUPPORTS
SCALE - 1/2" = 1'-0"



PLAN

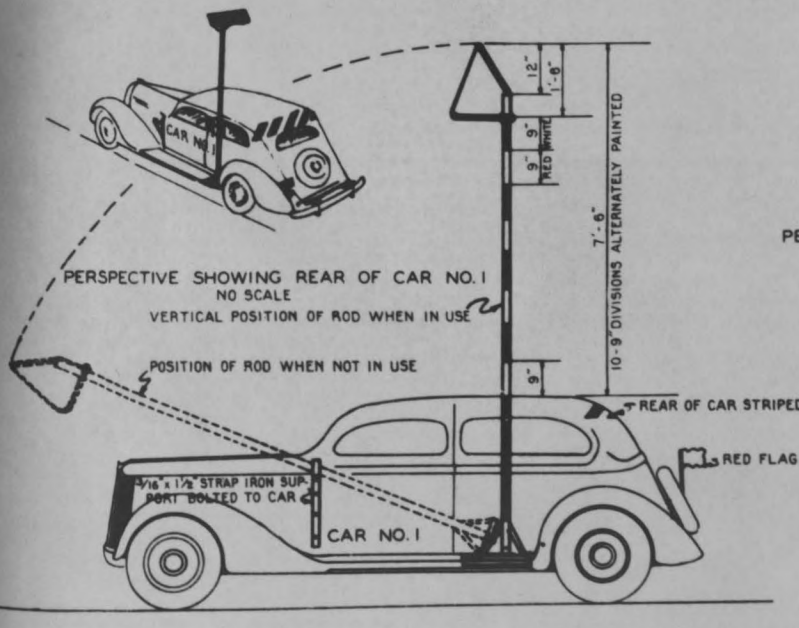
DETAILS OF STADIA ROD

SCALE 1" = 1'-0"



PERSPECTIVE SHOWING FRONT OF CAR NO. 2

NO SCALE



POSITION OF STADIA ROD MOUNTED ON RUNNING BOARD CAR NO. 1

SCALE 1/2" = 1'-0"

METHOD FOR MEASURING
SIGHT DISTANCE
BY AUTOMOBILE

SAMPLE OF SIGHT
DISTANCE NOTES

Car-Party Chief-A.H.Stephens
1 Recorder -G.H.Nellis
Car-Observer -H.L.Holley
2 Recorder -W.F.Davis

		9.05	Bushes & Trees-Right
		8.165	
C. of Ga. R.R.		8.100	Vertical Curve
		.065	
	SR - #3	7.275	Horizontal Curve-Right
		7.200	Railing on Concrete
		.075	Bridge
		4.170	Vertical-Horizontal
		4.045	Curve-Right
		.125	End Trees
	Low		
Clear	Bank		
CR - #42		93.6	CR - #42
Filling	Corn		
Station	Field		
		3.400	Horizontal Curve-Right
		3.260	Crops-Corn
		.140	
		3.195	Horizontal Curve-Right
	SR - #3	3.100	Trees, Barn & House
		.095	
		2.215	Horizontal Curve-Left
		2.050	Bushes, Trees & Garage
		.165	
		0.465	
		0.325	Vertical Curve
		.140	

N. Corp. Line - Calhoun 4390.2
Gordon County 0.00

Begin

New Concrete Highway

Unlimited Sight Distance

Horizontal Curvature Survey

General

A record of curvature data on roads is essential to safety in view of modern speed and traffic conditions. This data should include the location, length and direction of all curves.

The curvature party shall consist of a chief of party and a recorder. The equipment for this party shall consist of the following:

1. Closed automobile equipped with an overrunning clutch odometer graduated to the hundreths of a mile
2. Curvature protractor mounted on the steering post (see drawing)
3. County maps showing all road numbers
4. Inventory forms (see sample form)
5. Stationery supplies
6. Two red flags for operating protection

Test runs over known or measured distances shall be made, as previously explained under Road Inventory, in order to establish and maintain the odometer constant.

Curvature Protractor

The protractor must be graduated to full degrees, and since each standard make of automobile has its own individual turning radius, these graduations must be determined empirically.

The automobile must be driven slowly along a known tangent which is fairly level such as a street car track and stopped carefully. A blank white cardboard, cut similar to the protractor shown in the drawing on a following page, is then placed under the steering wheel and as close to it as possible without

interfering with manipulation of the steering wheel. An arc is then described on the cardboard, along the outer rim of the wheel. A zero pencil line is then drawn at the midpoint of the cardboard paralleling the projection of the tangent line being followed. A narrow strip of adhesive tape is then placed around the wheel directly in line with the zero pencil line so that the latter can be projected and marked upon the tape. The steering wheel is then carefully turned in both directions until the lost motion has been taken up. The point of lost motion is marked upon the arc opposite the zero line on the adhesive tape on both sides of the center line. The steering wheel is then brought back to its original position and strips of adhesive tape are placed on the wheel opposite the lost motion marks and a line marked on these strips. A quarter-turn point is marked on the steering wheel in a similar manner by placing the right angle vertex of a forty five degree triangle at the center of the wheel and one side along the line of lost motion.

The car is then driven into a fairly level area and a number of circles described by holding the quarter-turn point of the wheel on the zero line of the cardboard. This must be done in both directions since the lost motion may be greater in one direction than in the other. As each circle is completed, the diameter is measured, in order that the average diameter for the full number of circles described may be determined.

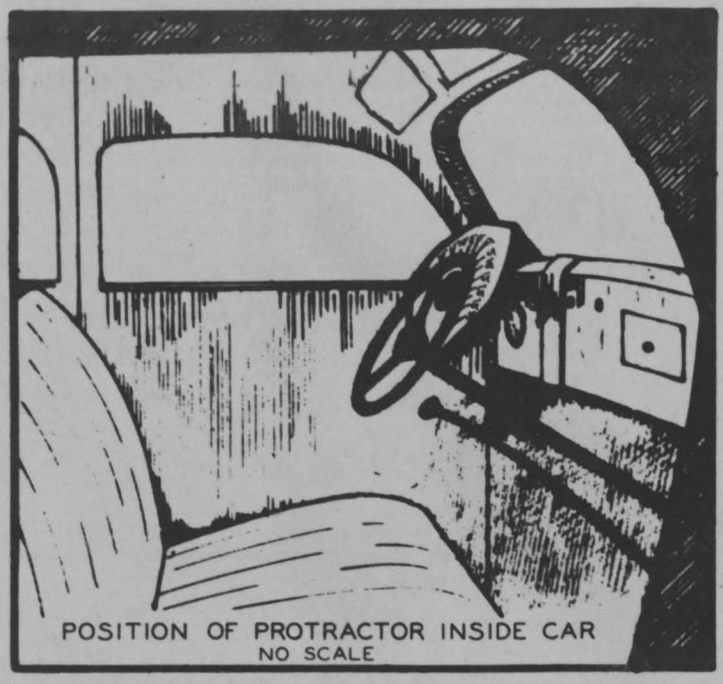
The average diameter for a quarter-turn having measured 342 feet in diameter indicates a curvature of 34 degrees for the corresponding radius of 171 feet. The value of one degree of arc would, therefore, be one thirty-fourth of one quarter of

the steering wheel circumference. Since the diameter of the steering wheel can be determined, it now becomes a simple matter of constructing the protractor using the lost motion point as the zero degree mark in each direction.

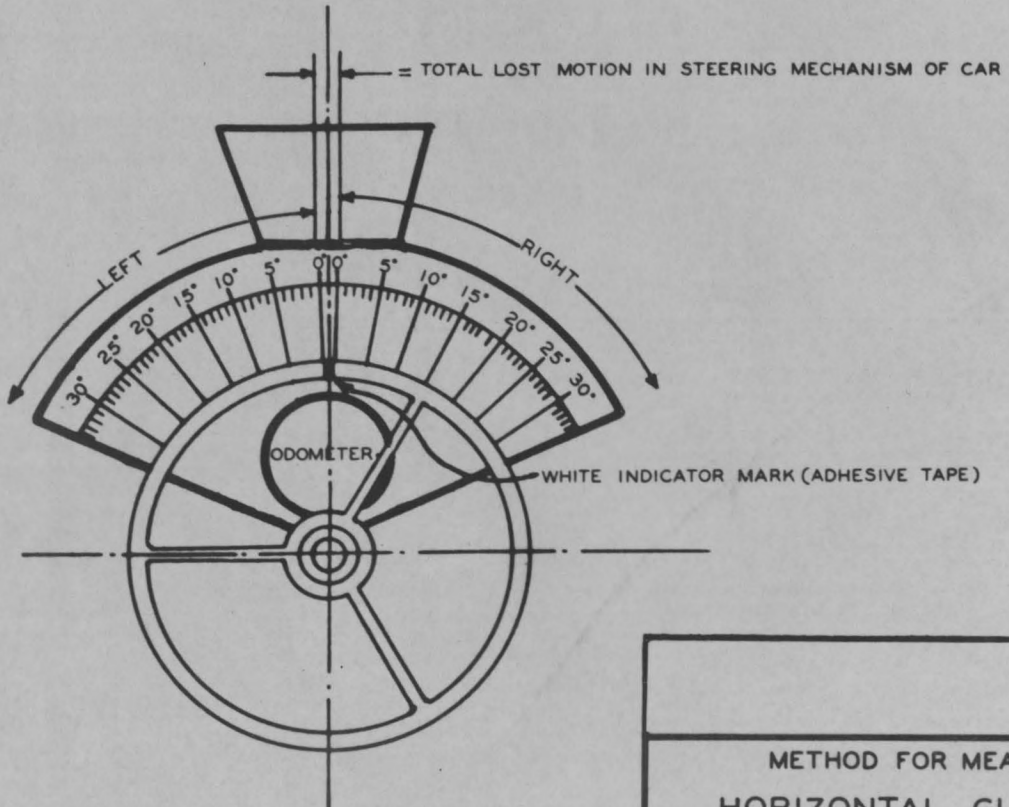
The protractor should be designed on black paper using white lines and should be glued to a piece of masonite board cut to proper shape. It is then mounted on the steering post directly under the wheel and cross braced to the under side of the instrument board. All strips of tape are removed from the wheel except the original zero line strip, which serves as an indicator for the protractor. It will be necessary to cut a hole in the protractor board, as shown on the drawing, to permit reading of the odometer.

Survey Proceedure

The party shall proceed to the starting point and make the necessary preparations to begin surveying. The car shall be driven so that the left front wheel is trained in a path parallel to the center line of the road and as close to it as traffic will permit. As a curve is approached, the P.C. shall be recorded by odometer reading and the degree of curve shall be read at the degree mark shown by the indicator. The speed of the car shall be 15 miles per hour, when measuring, in order that the operator can maintain his position with respect to the center line of the road. The degree of curvature shall be checked in going around the curve and at the end of the curve the odometer reading of the P.T. shall be recorded. The direction of the curve shall also be noted. All other data such as major road intersections, railroad crossings, city and county lines, shall also be recorded as shown on the sample inventory form.



POSITION OF PROTRACTOR INSIDE CAR
NO SCALE



CURVATURE MEASURING EQUIPMENT
DETAIL OF PROTRACTOR
SCALE 1½"=1'-0"

METHOD FOR MEASURING HORIZONTAL CURVATURE BY AUTOMOBILE

SAMPLE OF CURVATURE
NOTES

Party Chief-A.H.Stephens
Recorder -G.H.Nellis

		8.35	Enter Bartow County Leave Gordon County
		7.440	
		7.340	D - 12 Right
		.100	
	SR - #3	7.340	
S Curve		7.280	D - 18 Left
		.060	
		7.280	
		7.200	D - 16 Right
		.080	
CR - #101		86.8	CR - #101
		6.000	
		5.820	D - 12 Left
Reverse		.180	
		5.820	
		5.770	D - 11 Right
		.050	
		4.230	
		4.115	D - 21 Left
		.115	
	SR - #3	2.210	
		2.100	D - 10 Right
		.110	
		1.875	
		1.775	D - 8 Left
		.100	
S. Corp. Line - Calhoun Gordon County		5680.0 0.00	

Begin

Bituminous Surfaced Highway

No Traffic Hazards

PART IV

TRAFFIC SURVEY

Traffic Survey

General

A traffic survey is necessary to make possible a program of improvement whose financial requirements may be estimated with reasonable accuracy; and to develop a definite schedule of improvements in order that first consideration may be given to the heaviest demands of traffic. Compilation of all this data will enable us to visualize the total flow of traffic, peak traffic, seasonal traffic, foreign traffic and commercial traffic.

It is quite impossible to make a traffic count or to secure weight movement data on every road during each hour of every day; therefore, it becomes necessary to so conduct the survey that sample counts on definite schedules will provide us with sufficient information upon which statistical computations may be based. Since a final analysis of the completed survey depends upon the accuracy of averages, it is important that the location, count, timing, regularity, uniformity, and continuity of the record be maintained.

The entire traffic survey should be scheduled to operate over a period of a full year under two main divisions; one for the purpose of securing traffic density data for all types of vehicles, and the other for securing weight data for trucks and buses. Traffic density data shall be obtained by making counts at the following:

1. Key stations to be operated on primary roads only for compiling traffic density records on main routes
2. Blanket count stations to be operated on secondary or local roads to determine their traffic utilization

3. Origin-destination studies to determine the extent of urban and rural traffic movement
4. Automatic counters to provide a continous record of traffic flow past selected points on primary and secondary roads

Key Stations

Key stations shall be operated in circuits of eighteen stations, the number of circuits depending upon the importance and extent of the primary roads. Georgia has twelve such circuits, making a total of 216 key stations, and in addition to this number there are 54 loadometer stations, as explained under a separate section, which are operated as a key station in conjunction with the loadometer party, thereby making a total of 270 key stations throughout the state.

One day recorder shall be assigned to each circuit operating on alternate eight-hour shifts from 6:00 A.M. to 2:00 P.M., and from 2:00 P.M. to 10:00 P.M. Fourteen eight-hour day counts shall be made at each of the eighteen stations so scheduled that a record will be obtained twice on each day of the week at separate times during the year. One night key recorder, operating from 10:00 P.M. to 6:00 A.M., shall be assigned to cover two key circuits and one loadometer circuit in order that five eight-hour night counts may be obtained on each of the key circuits, and four eight-hour night counts may be obtained on each of the the loadometer circuits.

Key stations shall be located prior to the beginning of operations and sketches prepared for the recorders (see sample sketch). Careful selection of the most important intersections

on primary roads is essential since once a station has been placed in operation, it should be operated on schedule throughout the year. Any disruption of the schedule will necessarily interfere with statistical computations.

Each recorder shall be equipped as follows:

1. Clip board (18" x 24") to hold Form HPST-15
2. Hand counters (2 or 4) depending upon the volume of traffic
3. Flashlight
4. Gasoline lantern
5. Complete set of sketches for the entire circuit (see sample sketch)
6. Master schedule of operations
7. Forms HPST-11 and HPST-15 (see sample sketches)
8. Stationery and pencils

The recorder shall travel to and from stations by automobile and shall so situate himself at a station that an unobstructed view may be had of all traffic passing through the station. The operating routine of each circuit, as determined by a prearranged schedule, must be adhered to. Stations shall be operated regardless of weather conditions. The recorder shall always be present at his station before the scheduled time in order that the traffic count may be started exactly on the hour and he shall remain on duty without any interruptions until the end of the eight-hour shift. Any excusable delay in reaching the post of duty, such as a flat tire, must be explained by the recorder on the back of Form HPST-15 and the actual time of beginning the traffic count must be shown. If, for example, the

shift is to begin at 6:00 A.M. and the recorder fails to reach the station on time and does not begin counting traffic until 6:20 A.M., then the first hourly count shall be shown to extend from 6:20 A. M. to 7:00 A.M. and hourly thereafter.

Form HPST-15 (see sample form) shall be used to record all information and is self-explanatory. No vehicles shall be stopped by the recorder, tabulation being made by observation alone. Every vehicle, according to its classification, shall be recorded twice; first, for the leg of the intersection on which it travels to the station, and second, for the leg on which it travels from the station. All vehicles shall be classified as local if licensed in the state under survey, regardless of how many other tags may be displayed; and all other vehicles shall be classified as foreign. Traffic count shall be recorded directly upon Form HPST-15 either by means of tally marks as each vehicle passes the station or by recording the hourly hand counter total at the end of each hour.

All descriptive information relating to each leg must conform to that shown on the station sketch (see sample sketch). Any change in weather conditions must be noted since traffic movement may be greatly affected by inclement weather. Abnormal traffic movements, created by such causes as detours, fairs or sporting events, shall be described under remarks at the bottom of the form.

Hourly totals shall be recorded at the end of each hour, if feasible, and grand totals shall be recorded at the end of the period of duty. The total of every type of vehicle coming to the station each hour should coincide with the total going from

the station for the same hour; therefore, the grand total of all vehicles for the entire eight-hour count must always be an even number.

Forms HPST-11 and HPST-15 (see sample forms) shall be mailed as soon after completion of the traffic count at each station as possible in order that checking and tabulation progress may be carried forward with the least amount of interruptions.

Computation of Twenty-four Hour Annual Average

An average twenty-four hour traffic count for the various types of vehicles is developed on an annual basis for each key station. The traffic movement on each leg of an intersection is developed separately in order that a record may be obtained for each road under investigation. In order to arrive at an annual average it becomes necessary to compute the average for each eight-hour period count on a seven-day basis and then convert these period averages into a twenty-four hour annual average.

Traffic movement on Saturdays and Sundays differs materially from that on the other five week days, so the five week day average must be combined with a Saturday average and a Sunday average, in order that a true weekly average may be computed. If, for example, a density count has been secured on four week days, one Saturday and three Sundays; the total count for the four week days shall be divided by four, then multiplied by five, the total count for the three Sundays shall be divided by three and the weekly average obtained by adding the average week day count to the Saturday count and the average Sunday count. The average computed for each of the three eight-hour periods in this manner is then added and divided by seven to obtain the

full twenty-four hour annual average.

Abnormal movements of traffic caused by unusual attractions such as fairs and sporting events, must be converted into normal movement on a yearly basis before the annual average can be computed. The following example has been assumed to clarify this conversion:

HOURS 6:00 A.M. - 2:00 P.M.

DATE	DAY	REMARKS	PASSENGER CARS
10-20-37	Wednesday	County Fair	1793
12-11-37	Saturday		616
2- 1-38	Tuesday		513
3-25-38	Friday		298
5-16-38	Sunday		444
7- 7-38	Thursday		367
8-29-38	Monday		452
Computed total vehicles (without correction)			4483
Computed total vehicles (corrected)			3124

Method of Correction:

Total week days (excluding 10-20-37) = 1630

Average week day (excluding 10-20-37) = 1630/4 = 407.5

Excess count of 10-20-37 over average count = 1793 - 407.5 = 1385.5

Distribution of excess over each week day of year = 1385.5/261 = 5.3

Corrected average week day count = 407.5 ∔ 5.3 = 412.8

Computed total vehicles = 412.8 x 5 ∔ 616 ∔ 444

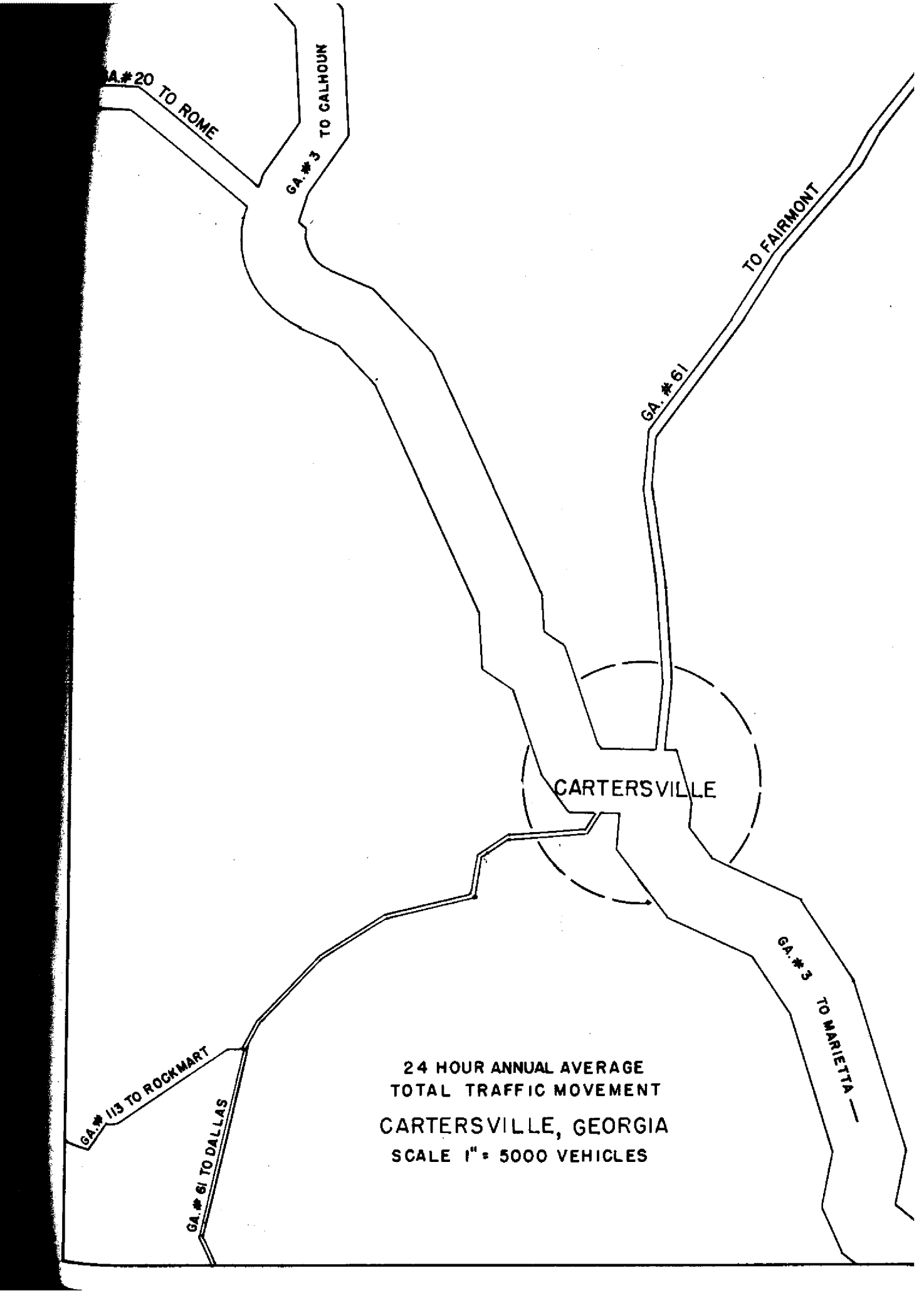
= 3124

Twenty-four hour annual averages computed in this manner for every leg of each key station, make it possible to prepare a traffic flow map for every city or town of importance, from the standpoint of traffic movement. Since counts made at key stations are tabulated as to types of vehicles, both local and foreign, a traffic flow map can readily be prepared for any specific type desired.

Cartersville, Georgia, being situated at the intersection of a number of important State and Federal routes, will serve as a good example for a traffic flow map. The computed twenty-four hour annual average for each key station affected by traffic to and from this city is tabulated on the following page. It was necessary to base the computation of this annual average on a four-month period since the traffic survey has not been completed, and records are only available for this four-month period. The traffic map which follows the tabulation sheet was prepared from this computed twenty-four hour annual average and is accurate only with respect to the period for which records were available.

Computed Twenty-four Hour Annual Average Count for Highways Serving Cartersville, Georgia.

	Local		Foreign		Total
	Passenger Cars	Trucks & Busses	Passenger Cars	Trucks & Busses	
Station 14					
Leg 1 U.S. 41; Ga. 3 - To Kennesaw	1528	485	866	52	2931
Leg 2 U.S. 41; Ga. 3 - To Marietta	1520	481	723	49	2773
Leg 3 County Road - To Lost Mountain	11	5	0	0	16
Station 255					
Leg 1 U.S. 41; Ga. 3 - To Calhoun	750	371	755	80	1956
Leg 2 U.S. 41; Ga. 3 - To Cartersville	1206	508	864	89	2667
Leg 3 U.S. 411; Ga. 20 - To Rome	595	180	129	9	913
Station 256					
Leg 1 U.S. 411; Ga. 20 - To Canton	53	28	2	0	83
Leg 2 U.S. 411; Ga. 20 & 61 - To Cartersville	237	106	28	8	379
Leg 3 County Road - To Adairsville	6	1	0	0	7
Leg 4 Ga. 61 - To Fairmount	238	92	29	8	367
Station 286					
Leg 1 Ga. 61 - To Cartersville	149	50	5	0	204
Leg 2 Ga. 61 - To Dallas	42	22	0	0	64
Leg 3 Ga. 113 - To Rockmart	118	33	4	0	155


A.#20 TO ROME
GA.#3 TO CALHOUN
TO FAIRMONT
GA.#61
CARTERSVILLE
GA.#3 TO MARIETTA
GA.#113 TO ROCKMART
GA.#61 TO DALLAS
24 HOUR ANNUAL AVERAGE
TOTAL TRAFFIC MOVEMENT
CARTERSVILLE, GEORGIA
SCALE 1" = 5000 VEHICLES

Blanket Count Stations

Blanket count stations are, with a few exceptions, located primarily on local roads, generally at road intersections. These stations, located at points which reveal material changes in traffic density, will supply sufficient information to create a traffic profile in somewhat the same manner that a ground profile is created.

Somewhat the same proceedure is followed in securing data at the blanket count stations as is done at the key stations. One recorder is assigned to a series of stations, but operates each station only one time from 8:00 A.M. to 4:00 P.M., with the exception of a few control stations, where repeated counts are essential as a basis for traffic movement interpolation for certain selected areas. These control stations shall be operated at four different times during the year in order to determine the effect of seasonal change upon traffic movement.

Stations located on primary roads shall be operated in exactly the same manner as key stations, classifying vehicles by observation and recording all data on Form HPST-15. At local road stations, however, all vehicles shall be stopped and the drivers questioned in order to properly record the data required on Form HPST-17 (see sample form). The manufacturer's rated capacity of all trucks shall also be ascertained, either from the caution plate or by interrogating the driver. Information shall also be secured from the truck drivers as to whether they are going to or coming from a railroad station, wharf or boat. This information shall be tallied at the bottom of Form HPST-15 in its respective space, in addition to recording each truck in the usual method.

Blanket count operations in a county cannot be inaugurated until road inventory has been completed, since it is necessary to have a map of the entire road system of a county, and the road inventory party chief's statement as to observed traffic conditions on each road. By the use of this map and traffic information, it will be possible to select points of apparent traffic density change such as road intersections, entrances to manufacturing plants, resorts or other important traffic objectives.

The number of blanket count stations for the entire state is necessarily indeterminate until road inventory has been completed; however, counts can be made in one county independently of another. Selected blanket count stations which are to be used as control points or nuclei for the establishment of all other blanket count stations should be so located as to be near, but off of main roads inasmuch as all main roads are sufficiently controlled by key stations. These control stations should be located in each distinguishable cultural area throughout the state and should be numerous enough to adequately control all other blanket count stations. Location of control stations is of tantamount importance since traffic data secured at these stations will serve as a factor of interpolation with respect to rural traffic movement on primary roads as well as on secondary roads and will provide the basis for estimating an annual twenty-four hour traffic movement on every mile of road in the entire highway system.

Origin-Destination Study

Knowledge of the characteristics of road use on various types

of roads is of import, as well as knowledge of the amount of traffic moving over these roads. Compilation of this data will permit us to visualize the extent of general and local usage of, and the degree of urban and rural interest in various roads and classes of roads.

Origin-destination studies can only be secured by stopping vehicles at selected points of intersection on secondary as well as primary roads. This information shall be secured on secondary roads by the blanket count station recorder, as described in the preceding section. All types of motor vehicles shall be stopped and the driver interrogated in order that the required information may be obtained to properly fill out Form HPST-17 (see sample form). Origin-destination data should be obtained on primary roads only at loadometer stations, since the party operating these stations is sufficiently staffed and equipped to stop traffic without creating a hazard. However, direct questioning of drivers will usually not be attempted on primary roads unless traffic is light; instead, each vehicle will be stopped and each driver given a franked and self-addressed questionnaire card (see Form HPST-24), which he will be requested to fill out and mail. Distribution of these cards shall be made during daylight hours only.

Special origin-destination studies should also be conducted for the purpose of determining the feasibility of constructing alternate routes between certain points, by-pass or belt-line roads around certain cities, or improving existing unimproved routes. This information can only be secured by direct questioning of the traveling public at selected stations near these

points of contemplated change. Full dependence, however, should not be placed upon the data thus secured, since every new transportation facility generates new traffic which must be estimated on the basis of probable trade growth and related factors.

Automatic Counters

Continuous manual counts at key, loadometer and blanket count stations are necessarily impossible because of the exorbitant cost and it therefore becomes necessary to introduce another method of traffic tabulations which will be economically practicable. Uninterrupted recording of traffic can be done only by mechanical means and for this purpose an electrically controlled automatic counter has been developed by the Bureau of Roads for use on the Highway Planning Surveys. The Bureau has estimated that thirty-three such counters can be operated for the cost of one continuous manual-count station.

Automatic counters, however, cannot give the complete information necessary to make a comprehensive study of highway utilization since they record only the number of vehicles and not the type of vehicle nor the direction of travel. It is, therefore, essential that the various kinds of stations, already explained, be operated in order that a co-ordinated traffic movement pattern may be constructed from the data recorded at each type of station. Since most of the automatic counters and all of the key stations are located on main highways, it is important that the counters be installed as close to key stations as possible so that a relationship can be established between the classified manual count and the purely numerical automatic count.

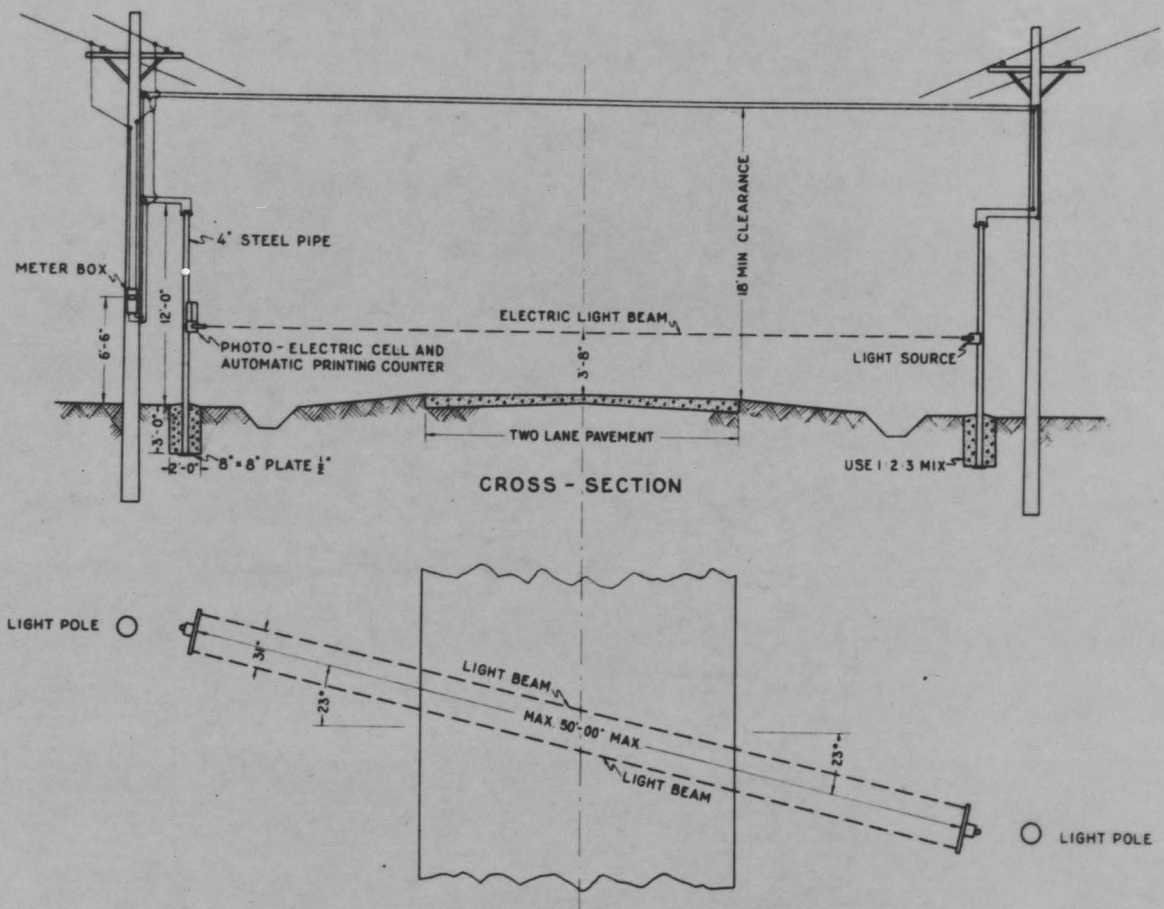


FIGURE 4.- PROPOSED LAYOUT OF AUTOMATIC TRAFFIC-COUNTER INSTALLATION

Most of the automatic counters should be installed on main highways in order that various traffic movement characteristics may be ascertained at locations near large cities; at considerable distances from these cities; on tourist routes; and on principal industrial and agricultural routes. A few secondary-primary road intersections which provide a stable secondary road traffic pattern should be selected as locations for a few automatic counters, so that hourly traffic fluctuations between primary and secondary roads may be determined.

The automatic counter is electrically controlled and consists of two units installed on opposite sides of the road. One unit, producing the light source, projects two beams of light, thirty-one inches apart, across the road at an angle of twenty-three degrees. The other unit consists of two photoelectric cells connected with the counting mechanism. The light source beams are focused upon the photo-electric cells and when both beams are interrupted simultaneously, by passing vehicles, the photo-electric relay is actuated, thereby operating the recording mechanism. (see sketch)

Since both beams must be interrupted, pedestrians cannot be recorded. The light beams are rendered practically invisible by installing infra-red filters in the light source unit thereby eliminating any hazard or annoyance to motorists.

The record is printed on standard adding machine paper registering the accumulated total each hour on the hour. The day and the hour is printed on the paper and post-meridian time is indicated by a dash under the hour figure. Minutes are not registered except when the mechanism stops recording altogether

because of power failure or other reasons, thereby providing means for estimating, by interpolation, the number of vehicles which passed the recorder during the period of interruption.

The counter shall be inspected at irregular intervals and a manual shall be made and compared with the mechanical count. The tape record shall be removed for each ten-day period and inspected for power or mechanical failures in order that the time, duration and type of failure may be investigated. This information shall be officially recorded on Form HPST-26 (see sample form).

Weight Data

Detailed information pertaining to all types of trucks and busses travelling on main roads throughout the state will be obtained at loadometer and pit-scale weight stations. The method of operation and the character of the information varies so that it becomes necessary to describe each type of station separately.

Loadometer Stations

This type of station shall be operated as a key as well as a loadometer station and the location shall be selected in the same manner as was the key station, previously explained. Each loadometer circuit shall consist of eighteen stations; the number of circuits depending upon the number and extent of main routes within a state, and the apparent movement of load-bearing vehicles travelling over these routes. Georgia has three such circuits, making a total of fifty-four loadometer stations throughout the State. Operation of the full eighteen stations constitutes a cycle and each cycle shall be scheduled so that every station will be operated fourteen times, on alternate eight-hour shifts, throughout the period of a full year. The

Once Important Farm to Market Road

Virtually Abandoned by Relocation

hours of duty shall be the same as for key station recorders.

One day loadometer party shall be assigned to each of the three circuits and one night party, operating from 10:00 P.M. to 6:00 A.M., shall be assigned to cover all three circuits. The loadometer party shall be composed of a chief of party, recorder, weighman, traffic officer and a key station recorder, and shall be equipped as follows:

1. Automobile (Station Wagon)
2. Loadometer scale (portable)
3. Wooden loadometer pits
4. Flags with standards
5. Signs with standards
6. Lanterns
7. Flambeaux
8. Flashlights
9. Level (carpenter)
10. Pick, shovel and axe
11. Clip boards (18" x 24")
12. Forms HPST-11, 18, 20, and 25 (see sample forms)
13. Complete set of station sketches (see sample sketch)
14. Master schedule of operations
15. Order of leg operation at each station
16. Stationery and pencils

The loadometer shall be tested for accuracy at frequent intervals by placing it upon an accurate pit scale and weighing a truck simultaneously with the pit scale, in order that a precise comparison may be obtained. The results of this test shall be officially recorded upon Form HPST-25 (see sample form).

A location on the leg of the intersection of the station to be operated shall be selected with regard to safety of the party personnel and the motoring public. A pit shall be dug on the shoulder of the road on each side for the wooden pit boxes to fit into. The depth shall be such that the top of the loadometer, resting in the wooden pit boxes, shall be level with the surface of the road at axle length distance from the loadometer. All protective devices shall be placed at their respective positions. The traffic officer shall stop all trucks and busses and instruct the driver to proceed slowly to the loadometer where the chief of party shall direct him further. Since the loadometer can only weigh one wheel at the time, the party chief shall direct the driver how to proceed, and the weighman shall slide the loadometer directly under the wheel as it approaches the pit. While the party chief is questioning the driver, the weighman shall secure other information directly from the vehicle itself. In case a truck or bus is weighed empty, Form HPST-20a (see sample form), shall be filled out and pasted on the windshield, so that the next time this truck is stopped, it need not be weighed again if empty, but if loaded, then the truck or bus should be weighed and recorded and this empty weight recorded along with the loaded weight in order to determine the carried load.

All information secured at loadometer stations shall be listed on Form HPST-18 (see sample form), directly as called for, or by symbols in its respective column as follows:

1. Local, or nearest foreign state, if more than one license plate is displayed

2. Obtained from license tag

3. Obtained from license tag

   Indicate total number of tags displayed

4. Type of vehicle to be indicated by the following symbols:

   TK - Truck

   TR - Trailer

   TT - Tractor truck

   ST - Semitrailer

   Bus - Bus

   Indicate total number of trailers

5. Type of body to be indicated by the following symbols:

   Bus - Bus

   CO - Covered, box, closed, delivery, panel, screen, van

   PL - Platform, flat bed

   ST - Stake, crate, rack

   TA - Tank

   OP - Open, dump, pick-up

   Pass- Passenger car used as bus or truck

   Ref - Refrigerator

   AC - Auto carrier

   CH - Chassis only

   BL - Not classified above

6. Operating classifications to be symbolized by:

   P - Private truck

   A - Common carrier truck engaged in intrastate or interstate commerce and operating over a fixed route

B - Common carrier truck engaged in intrastate or interstate commerce but not operating over a fixed route

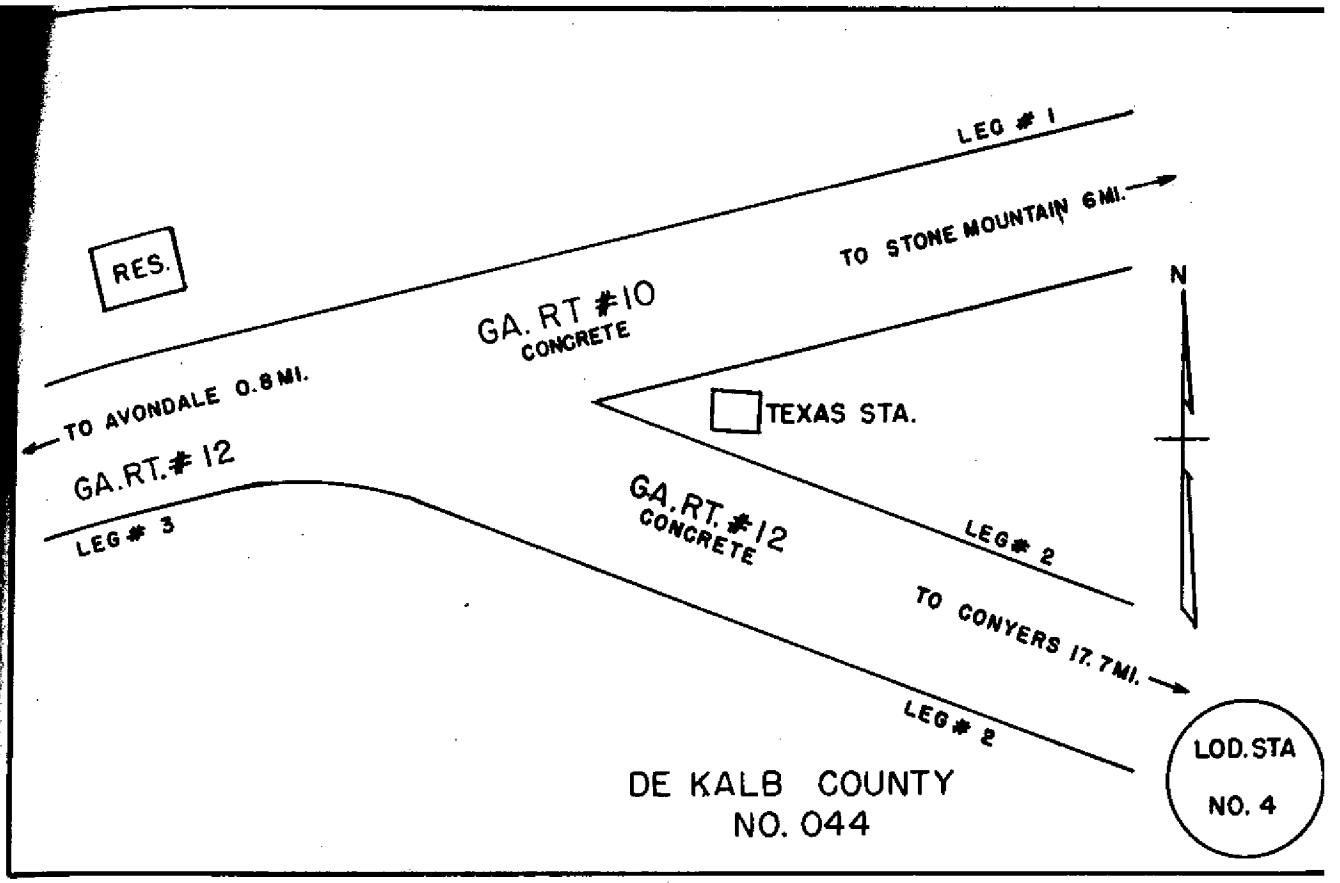
E - Contract carrier truck engaged in intrastate or interstate commerce

S - School bus

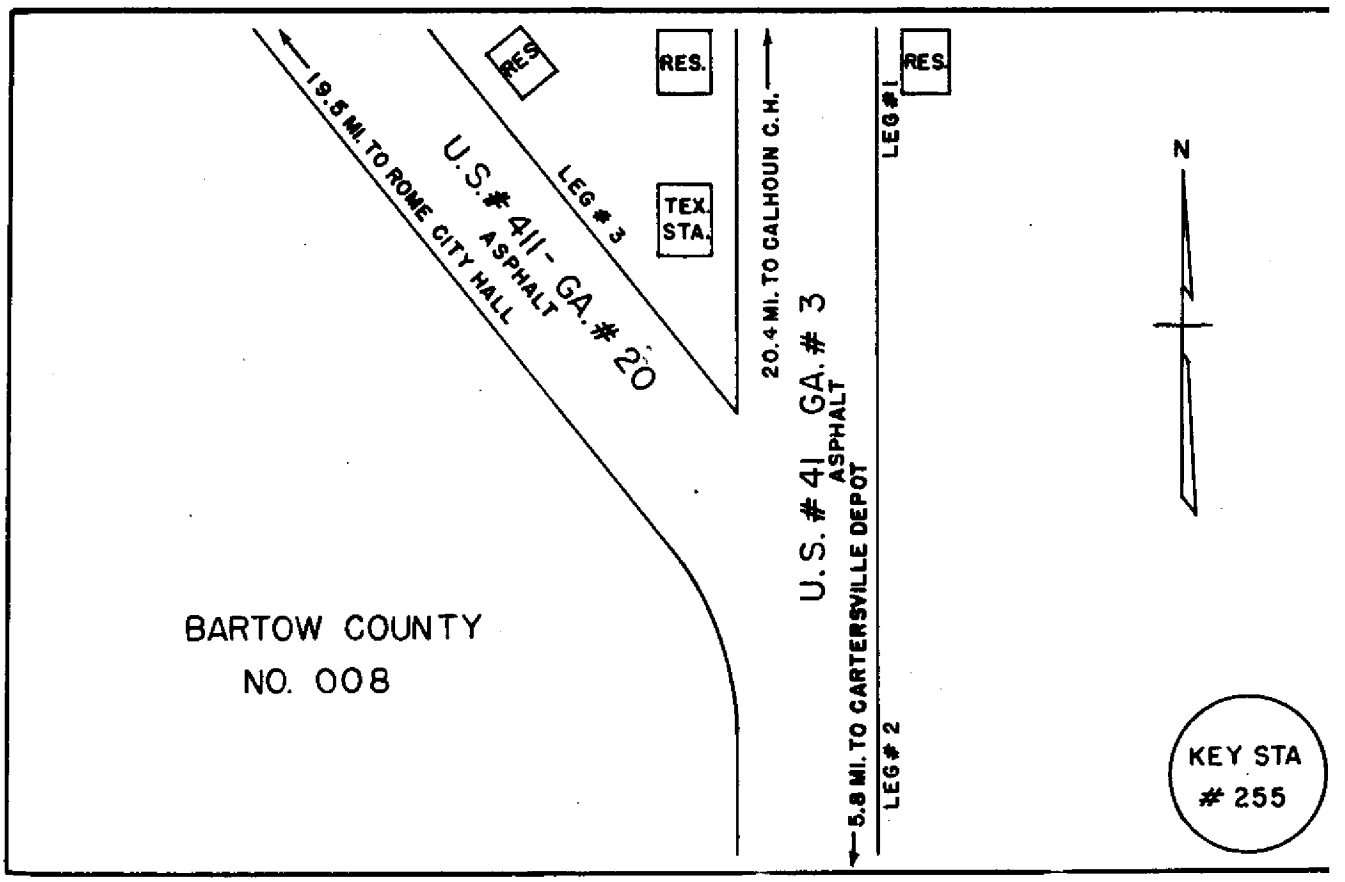
A-1 - Common carrier bus engaged in intrastate or interstate commerce and operating over a fixed route

O - All others

7. Manufacturer's rated capacity to be obtained from plate, license tag, or by estimation, appending the letters P, L, and E respectively. Maximum gross load to be taken from caution plate or if vehicle carries no caution plate then record serial number
8. Respective wheel loads as indicated on loadometer scale
9. Double the sum of all wheel loads
10. Empty weight secured from empty weight sticker (see Form HPST-20a)
11. Difference between loaded weight and empty weight
12. Place where vehicle is owned or usually garaged
13. Place from where this particular trip was started
14. Final destination of trip
15. Total mileage including side trips, if any
16. Complete description of type of origin
17. Complete description of type of destination
18. Detailed description and amount of commodity carried, if truck, and number of passengers, if bus. If the vehicle is empty it should be so noted.



Location Sketch of Loadometer Station



Location Sketch of Key Station

Care shall be exercised in obtaining and recording all information since the data on each truck and bus is used in compiling statistics for the state as a whole. Reports shall be checked and mailed at the end of each operation so that computations may be carried forward progressively.

Pit Scale Stations

Pit scale stations shall be permanently located entirely off of the road near the edge of the right-of-way. The locations shall be on heavily traveled routes with a clear sight distance in both directions of one thousand feet or more. Four stations, in various sections of Georgia, shall be operated in rotation by one party in cycles of thirty days for each station. Trucks and busses travelling in one direction shall be stopped and weighed during a period of fifteen operating days and those travelling in the opposite direction shall then be stopped and weighed during the remaining fifteen days of the thirty day cycle. The hours of operation for the fifteen days shall be from 6:00 A.M. to 2:00 P.M. for five days; from 2:00 P.M. to 10:00 P.M. for five days; and from 10:00 P.M. to 6:00 A.M. for the remaining five days.

The party personnel shall consist of a chief of party, weighman, recorder, and traffic officer. The equipment shall consist of that issued to the loadometer party except that no loadometer will be used and that the following kind of forms and additional equipment will be issued.

Forms HPST-19 and 20b (see sample forms)

Fifty foot metallic tape, divided into feet and tenths of a foot, for measuring the length and width of each vehicle

and the wheel base length of each vehicle

Special level rod, divided into feet and tenths of a foot, for measuring the height of vehicles

Each truck and bus, as it is weighed, shall be measured to determine the overall length, width, and the height of the vehicle, including the load, and the length of the wheel base. The driver of each vehicle shall be questioned by the chief of party to obtain all pertinent data required to properly fill out Form HPST-19.

All information secured at pit scale stations shall be recorded on Form HPST-19 (see sample form), directly as called for, or by symbols in its respective column as follows:

1-3. Same instructions as described for columns 1-2-3 on Form HPST-18

4. Trade name of vehicle and year of manufacture

5-8. Same instructions as described for columns 4-5-7-18 on Form HPST-18

9. Tire equipment to be symbolized as follows:

For tractor truck or full trailer:

PP - two axle vehicle, single pneumatic tires, front and rear

PPD - three axle vehicle, single pneumatic tires on two front axles and dual pneumatic tires on rear axle

PPP - three axle vehicle, single pneumatic tires on all axles

PDP - three axle vehicle, single pneumatic tires on front and rear axle, and dual pneumatic tires on second axle

PD - two axle vehicle, single pneumatic tires on front axle and dual pneumatic tires on rear axle

PDD - three axle vehicle, single pneumatic tires on front axle and dual pneumatic tires on other two axles

PS - two axle vehicle, pneumatic tires on front axle and solid tires on rear axle

PSS - three axle vehicle, pneumatic tires on front axle and solid tires on other two axles

SS - two axle vehicle, solid tires on both axles

SSS - three axle vehicle, solid tires on all axles

For semitrailer:

P - one axle semitrailer, single pneumatic tires

D - one axle semitrailer, dual pneumatic tires

S - one axle semitrailer, solid tires

PP - two axle semitrailer, single pneumatic tires on both axles

PD - two axle semitrailer, single pneumatic tires on front axle and dual pneumatic tires on rear axle

DP - two axle semitrailer, dual pneumatic tires on front axle and single pneumatic tires on rear axle

DD - two axle semitrailer, dual pneumatic tires on both axles

SS - two axle semitrailer, solid tires on both axles

10. Indicate size of tires on each axle

11. Leave blank, to be filled in from test data

12. Maximum overall width of vehicle or load

13. Maximum overall length of vehicle or load

    Overall distance from center of front axle to center of rear axle, indicate distance between dual axles, if any

14. Maximum overall height of vehicle or load

15-19. Record registered weight of each axle

20. Sum of all axle weights if truck or bus is loaded

21. Sum of all axle weights if truck or bus is empty

22. Difference between loaded weight and empty weight

23. Combined weight of tractor truck, semitrailer, and trailers

24. Enter axle number carrying maximum load

25. Leave blank, to be filled in later

26. Compute ratio of maximum loaded axle to total load

Trucks and busses weighed when empty shall have pit scale empty-weight sticker (see Form HPST-20b) affixed to their windshields, but if this same vehicle passes the station, carrying a load, it shall be weighed and recorded, and the empty weight shall be noted in column twenty-one. Empty vehicles which display a loadometer empty-weight sticker (see Form HPST-20a) shall be weighed on the pit scale and shall have the loadometer empty-weight sticker replaced with a pit scale empty-weight sticker. No vehicle shall be weighed more than once loaded and once empty during each five day period.

Loadometer Party and Key Recorder

Daily Report Card

Form HPS T-11

HPS-T-11

PARTY CHIEF'S OR RECORDER'S DAILY WORK REPORT

Dist. No._____ County_____ Sta. No._____ Date_____ 193__

Total Traffic Counted: Leg 1_____: Leg 2_____: Leg 3_____: Leg 4_____

Total Vehicles Weighed_____: Period Worked: From_____ To_____

No. Origin-Destination Interviews_____: No. Cards Distributed_____

Weather_____: Official Visitor_____

Party Personnel

_____

_____

_____

Odometer Reading beginning of day_____

Odometer Reading end of day_____

Total Mileage_____

Less Personal Mileage_____

Official Mileage_____

Itinerary

Date	Sta. No.	Hours

Off Duty Quarters

_____

_____

_____

Mail Daily: One copy State office.
One copy Dist. Supvr.

Signed_____
Party Chief or Recorder.

Origin-Destination Questionnaire Card

Form HPS T-24

Form HPS T-24

County_____ Sta. No._____ Date_____ Day_____ Hour Period_____ Weather_____

The U .S. BUREAU OF PUBLIC ROADS is cooperating with State Highway Departments in a broad Highway Planning Survey in the interest of all highway users. The information given by you is needed and will be appreciated. Check the ☐ after the word "IN" only if the place of ownership, or origin or destination of this trip is within the limits of the city or town named. Check the ☐ after the word "NEAR" if the place is outside the limits of the city or town named.

TYPE VEHICLE: (2)_____ WHERE IS THIS VEHICLE GENERALLY GARAGED (Place of Ownership)?

(3-c) In ☐ or Near ☐ (Check (√) one only) (d) (City or Town) (e) (County (f) (State)

AT WHAT POINT DID THIS TRIP BEGIN?

(4-c) In ☐ or Near ☐ (Check (√) one only) (d) (City or Town) (e) (County (f) (State)

TO WHAT POINT ARE YOU TRAVELING?

(5-c) In ☐ or Near ☐ (Check (√) one only) (d) (City or Town) (e) (County (f) (State)

PLEASE LIST ROUTES USED OR IMPORTANT PLACES PASSED THROUGH: (7-a)_____

THIS TRIP: (b) MILES_____ (c) TIME REQUIRED_____ (d) PERSONS (INCLUDING DRIVER)_____

(e) PLEASE CHECK PURPOSE OF THIS TRIP: BUSINESS_____ SOCIAL_____ RECREATIONAL_____

REMARKS:_____

This card can be dropped in any U. S. Mail Box. SIGNATURE AND STAMP NOT REQUIRED.

Office Use	1	2	3a	3b	3c	3d	3e	3f	4a	4b	4c	4d	4e	4f

4g	5a	5b	5c	5d	5e	5f	5g	6	7a	7b	7c	7d	7e

SHEET NO. 1 OF 1 SHEETS. CYCLE NO. 6

DISTRICT NO. 1 COUNTY Whitfield (NAME) 155 (NUMBER)

WEATHER Clear 2 PM to 3 PM - Cloudy 3 PM to 5 PM - Rain 5 PM to 10 PM

PARTY NO. DL-1 TOTAL VEHICLES RECORDED 1768

STATE HIGHWAY BOARD OF GEORGIA
DIVISION OF HIGHWAY PLANNING SURVEY
IN COOPERATION WITH UNITED STATES BUREAU OF PUBLIC ROADS
DAILY DENSITY REPORT

DATE Feb. 18, 1938 DAY Friday

HOUR PERIOD OF COUNT: FROM 2 PM TO 10 PM STATION NO. 16

( ) DAYLIGHT SAVING TIME
(x) CENTRAL STANDARD TIME
( ) EASTERN STANDARD TIME

(x) KEY STATION
( ) BLANKET COUNT CONTROL STATION
( ) BLANKET COUNT PRIMARY STATION
( ) BLANKET COUNT LOCAL STATION

ROUTE NO. U.S. #41 - Ga. #3 TO Dalton DIRECTION FROM STATION East (Asphalt - Good Condition)

	HOURS	HORSE DRAWN VEHICLES	PEDESTRIANS	MOTORCYCLES	BICYCLES	LOCAL VEHICLES: PASSENGER CARS WITH TRAILER House	WITH TRAILER Other	PASSENGER CARS WITHOUT TRAILER	TRUCKS: MANUFACTURERS RATED CAPACITY IN TONS — LIGHT UNDER 1½	LIGHT 1½	MEDIUM OVER 1½ UNDER 3	MEDIUM 3 AND UNDER 5	HEAVY 5	HEAVY OVER 5	Tractor-Truck SEMI-TRAILER	TRUCKS WITH TRAILERS	BUSSES SCHOOL	BUSSES OTHER	FOREIGN VEHICLES: PASSENGER CARS WITH TRAILER HOUSE	WITH TRAILER OTHER	PASSENGER CARS WITHOUT TRAILER	TRUCKS: MANFRS. RATED CAPACITY IN TONS — LIGHT Under 1½	LIGHT 1½	MEDIUM Over 1½ Under 3	MEDIUM 3 And Under 5	HEAVY 5	HEAVY Over 5	Tractor-Truck SEMI-TRAILER	TRUCKS WITH TRAILER	BUSSES	TOTAL (MOTOR VEHICLES ONLY)	HOURLY TOTALS (MOTOR VEHICLES ONLY)	Defective Lights Front	Defective Lights Rear
	(1)	(2)	(3)	(4a)	(4b)	(5)		(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)		(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	
TO FROM	2-3		1					15 / 21	1	6	1				2			1	2		40 / 23	1	3							72 / 58	130		
TO FROM	3-4							29 / 31	2	7	1				1		1	1	0	1	52 / 36	1	5 / 2							104 / 80	184		
TO FROM	4-5							20 / 40	2	4	1				2		1	1	2		48 / 24		3 / 0	2 / 0						84 / 72	156		
TO FROM	5-6							38 / 28	5	2	1				1			1			21 / 22		1 / 2	1						71 / 67	138		
TO FROM	6-7							28 / 17	2	2	0				1			1			21 / 11		1 / 0							55 / 34	89	2	1
TO FROM	7-8							16 / 22	4	3	1				0			1			14 / 13		0 / 2							39 / 48	87		3
TO FROM	8-9							20 / 12	0	5	0				1			1			6 / 4		0 / 0							32 / 21	53	1	1
TO FROM	9-10							11 / 9	0	1	1				0			1	1		4 / 5		0 / 1							20 / 21	41	1	
TO FROM															3																		
TO FROM															4																		
TOTAL		0	1	0	0	0	0	357	30	62	13	0	0	0	20	0	4	10	8	2	344	3	22	3	0	0	0	0	0	878	878	4	5

ROUTE NO. Ga. #2 TO La Fayette DIRECTION FROM STATION South West (Gravel - Good Condition)

		(1)	(2)	(3)	(4a)	(4b)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
TO FROM	2-3							2 / 0	1	1																				3 / 1	4		
TO FROM	3-4							3 / 2		1							2 / 1			1 / 1										7 / 3	10		
TO FROM	4-5							5 / 6	1	1							1			1 / 1										5 / 10	15		
TO FROM	5-6							1 / 4	1 / 2						1															2 / 7	9		
TO FROM	6-7							5 / 1		1																				5 / 2	7		
TO FROM	7-8							2 / 2	1 / 2	1																				4 / 4	8		1
TO FROM	8-9							1 / 2																						1 / 2	3		
TO FROM	9-10							0 / 0	1																					1 / 0	1		
TO FROM																																	
TOTAL			0	0	0	0	0	36	9	5	0	0	0	0	1	0	4	0	0	0	2	0	0	0	0	0	0	0	0	57	57	0	1

ROUTE NO. U.S. #41 - Ga. #3 TO Ringgold DIRECTION FROM STATION West (Asphalt - Good Condition)

		(1)	(2)	(3)	(4a)	(4b)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
TO FROM	2-3			1				19 / 15	1 / 1	6 / 5	0 / 1				1 / 2			1 / 1	0 / 2	1 / 0	23 / 40	1	2 / 3							55 / 71	126		
TO FROM	3-4							28 / 28	2	4	0				1			0	2	0	35	0	2							74			
TO FROM	4-5							27 / 35	2	8	1				1			1	3	1	52 / 24	1	5 / 0							102 / 68	176		
TO FROM	5-6							14 / 28	1	4	1				2			1			47 / 22		3 / 2	2 / 0						75 / 66	143		
TO FROM	6-7							35 / 13	3	2	1				0			1			21 / 11		1 / 0	1						65 / 31	131		1
TO FROM	7-8							28 / 20	0	6	2				1			1			21 / 13		1 / 2							55 / 45	86	2	2
TO FROM	8-9							20 / 14	2	4	1				3			0			14 / 4		0 / 0							36 / 20	81		1
TO FROM	9-10							11 / 18	0	1	1				0			0	1		6 / 5		0 / 1							30 / 20	50	1	
TO FROM								9 / 11	0 / 0	1	2				2			0			4		0							20	40	1	
TO FROM															4																		
TOTAL			0	1	0	0	0	325	21	65	13	0	0	0	19	0	0	10	8	2	342	3	22	3	0	0	0	0	0	833	833	4	4

ROUTE NO. ____ TO ____ DIRECTION FROM STATION ____

		(1)	(2)	(3)	(4a)	(4b)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
TO FROM																																	
TO FROM																																	
TO FROM																																	
TO FROM																																	
TO FROM																																	
TO FROM																																	
TO FROM																																	
TO FROM																																	
TO FROM																																	
TOTAL																																	

IS TRAFFIC MOVEMENT ABNORMAL No IF SO, STATE REASON ON BACK OF SHEET

NUMBER OF TRUCKS TO OR FROM R. R. STATION ____ TO OR FROM WHARF OR BOAT ____ LOCAL STATION ONLY

OFFICIAL VISITOR H. R. Jacobson (NAME)

SIGNED C. C. Cox (RECORDER) CHECKED Herbert R. Jacobson (DIST. SUPERVISOR)

2:00 - 3:15 (HOUR OF VISIT)

H. P. S. T. 17

Special
Blanket Count Station
Key Station
Loadoadometer Station

State Highway Board of Georgia

DIVISION OF HIGHWAY PLANNING

In Cooperation with United States Bureau of Public Roads

TRIP CLASSIFICATION REPORT

☐ Daylight Saving Time
☒ Central Standard Time
☐ Eastern Standard Time

Weather Clear & Cool

County Bartow (Name) 008 (Number) Station No. 302 District No. 1 Date Feb. 24, 1938 Day Thursday Hour Period 8 AM - 4 PM

1 ROAD SECTION	2 Type of Vehicle	3 PLACE OF OWNERSHIP a IN OR NEAR Dist. in Miles	3 b Direction	3 c POP. GROUP	3 d CITY OR TOWN	3 e COUNTY	3 f State	4 TRIP ORIGIN a IN OR NEAR Dist. in Miles	4 b Direction	4 c POP. GROUP	4 d CITY OR TOWN	4 e COUNTY	4 f State	4 g TYPE	5 TRIP DESTINATION a IN OR NEAR Dist. in Miles	5 b Direction	5 c POP. GROUP	5 d CITY OR TOWN	5 e COUNTY	5 f State	5 g TYPE	6 Trip Classification	7 TRIP INFORMATION a VIA PLACES & ROUTES	7 b Miles	7 c Time	7 d No. Persons or Commodities Carried	7 e Use
	P	3	S		Taylorsville	Bartow	Ga.	3	S		Taylorsville	Bartow	Ga.		In			Fairmount	Gordon	Ga.			Ga.#113-61	35	1-10	3	Social
	T	5	W		Euharlee	Bartow	Ga.	5	W		Euharlee	Bartow	Ga.		In			Cartersville	Bartow	Ga.			Co. Rd. Ga.#61	12	0-30	Furniture	Business
	SB	In			Cartersville	Bartow	Ga.	2	E		Stilesboro	Bartow	Ga.		In			Cartersville	Bartow	Ga.			Co. Rd. Ga.#61	8	0-40	14	Business
	T	In			Ladds	Bartow	Ga.	In			Ladds	Bartow	Ga.		In			Rockmart	Polk	Ga.			Ga.#61-113	20	0-50	Cotton	Business
	P	In			Rockmart	Polk	Ga.	In			Rockmart	Polk	Ga.		In			Blue Ridge	Fannin	Ga.			Ga.#113-61 -53-5	96	3-40	1	Pleasure

Interviewed by T. H. Smith

Checked by _____ Chief of Party

Herbert R. Jacobson
District Supervisor

Form H.P.S.T. 18

Sheet No. 1 of 4 Sheets Cycle No. 6

District No. 1 County Whitfield (Name) 155 (Number)

Route No. 41 (U.S.) 3 (State)

Party No. DL-1 Total Vehicles Recorded 75

Official Visitors H. R. Jacobson (Name) 2-3:15 (Hours of Visit)

STATE HIGHWAY BOARD OF GEORGIA

DIVISION OF HIGHWAY PLANNING SURVEY

IN COOPERATION WITH UNITED STATES BUREAU OF PUBLIC ROADS

Daily Truck and Bus Loadometer Report

Station No. 16 (Leg #1) Direction from Station S.E. (1 Mile)

Date Feb. 18, 1938 Day Friday

Hour Period of Count: From 2:00 PM To 10:00 PM Weather Cloudy 2-5 Rain 5-10

[ ] Daylight Saving Time Checked by R. L. Randolph (Chief of Party) Signed C. Green (Recorder)

[x] Central Standard Time

[ ] Eastern Standard Time Approved: Herbert R. Jacobson (District Supt.)

1	2	3	4		5	6		7		8				9	10	11	12				13				14				15		16	17	18	
ROAD SECTION	STATE OF REGISTRATION	REGISTRATION CLASS	LICENSE NUMBER	NO. OF TAGS	TYPE OF VEHICLE	NO. TRAILERS	TYPE OF BODY	Operating Classification: Licensed For	Operating Classification: Used For	Manufacturers Rated Capacity or Pay Load Tons or Pounds or No. of Pass.	Maximum Gross Load Tons or Pounds or No. of Pass.	Axle Arrangement	WHEEL LOAD: AXLE 1	WHEEL LOAD: AXLE 2	WHEEL LOAD: AXLE 3	Max. Axle	LOADED WEIGHT	EMPTY WEIGHT	CARRIED LOAD	TOTAL WEIGHT OF COMBINATION: PLACE OF OWNERSHIP: In or Near	CITY	COUNTY	State	ORIGIN: In or Near	CITY Or TOWN	COUNTY	STATE	DESTINATION: In or Near	CITY Or TOWN	COUNTY	STATE	TRIP: Classification	MILEAGE	TYPE OF ORIGIN	TYPE OF DESTINATION	COMMODITIES CARRIED	NUMBER OF PASSENGERS
	Ohio	R	6295	1	TK	0	ST	P	P	1½P	11550		1900	6600			17000			In	Muncie	Lucas	O	In	Tampa	Hillsboro	Fla	In	Muncie	Lucas	O		1200	Fruit Packing Hse	Whsle.Prod. Market	Oranges	
	Ga.	1½E	85103	2	TT	1	CH	A	A	1½L	13000		1700	5500						In	Atlanta	Fulton	Ga.	In	Atlanta	Fulton	Ga.	In	Chattanooga	Hamilton	Tenn		122	Freight Terminal	Freight Terminal	Mixed Freight	
	Ga.	3½E	343	3	ST	0	CO	A	A	5E	15000				6000		26400																				
	Ga.	C	33	3	Bus	0	Bus	A-1	A-1	35	Plate Cov.		4600	7800			24800			In	Jackson-ville	Duval	Fla.	In	Jackson-ville	Duval	Fla.	In	Chattanooga	Hamilton	Tenn		446	Bus Terminal	Bus Terminal		17
	Tenn	2	22744	1	TK	0	ST	P	P	1½E	Int.# 27261		1900	5100			14000			In	Fayette-ville	Lincoln	Tenn	In	Fayette-ville	Lincoln	Tenn	In	Atlanta	Fulton	Ga.		223	Stock Barn	Stock Yard	38 Calves	
	Ga.	1½A	5531	1	TK	0	TA	P	P	1½L	9300		1500	3700			10400	4800	5600	In	Dalton	Whitfield	Ga.	In	Dalton	Whitfield	Ga.	In	Tunnel Hill	Whitfield	Ga.		9	Whsle.Gas. Plant	Retail Gas. Station	620 gal.gas. 26 gal.oil	
	Ga.	1½B	35004	4	TT	1	CH	A	A	2P	12215		1600	6200						In	Nashville	Davidson	Tenn	In	Jackson-ville	Duval	Fla.	In	Nashville	Davidson	Tenn.		584	Docks	Whsle. Grocery Co.	Sugar in Bags	
	Ga.	3½E	3196	4	ST	0	CO	A	A	4E	18000				5400		26400	11040	15360																		
	Ky.	L	8511	1	TK	0	ST	P	P	1½E	4600		1200	1800	1600		9200			In	Campbell-ville	Taylor	Ky.	In	Atlanta	Fulton	Ga.	In	Campbell-ville	Taylor	Ky.		403	Granite Shed	Granite Shed	Block Granite	
	Ill.	F	5165	1	TK	0	ST	P	P	1½E	9300		2000	6200			16400			In	Chicago	Cook	Ill.	In	Atlanta	Fulton	Ga.	In	Chicago	Cook	Ill.		725	Whsle.Prod. Market	Whsle.Prod. Market	Onion Sets	

Form H.P.S.T. 19

Sheet No. 1 of 5 Sheets
District No. 1 County Cobb (Name) 033 (Number)
Route No. 41 (U.S.) 3 (State)
Party No. 1 Total Vehicles Recorded 63
Official Visitors H. R. Jacobson (Name) 6:15 - 7:30 (Hours of Visit)

STATE HIGHWAY BOARD OF GEORGIA
DIVISION OF HIGHWAY PLANNING SURVEY
IN COOPERATION WITH UNITED STATES BUREAU OF PUBLIC ROADS
DAILY TRUCK AND BUS PIT-SCALE REPORT

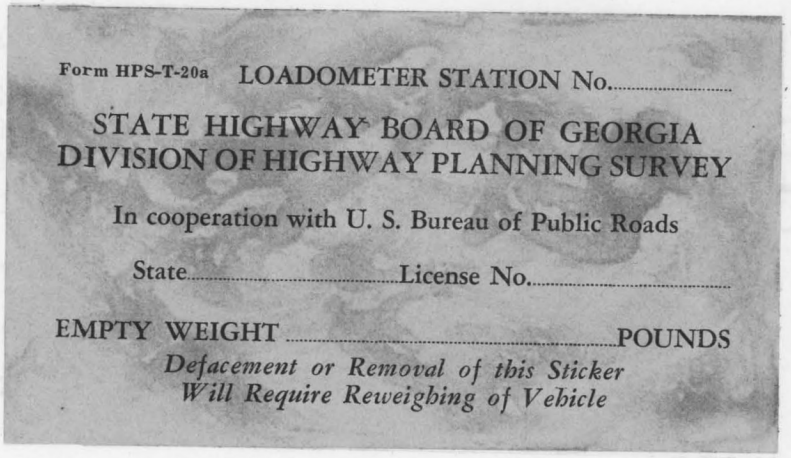
Station No. 1 N (Direction) Bound Traffic
Date Feb. 23, 1938 Day Wednesday
[ ] Daylight Saving Time Hour Period: From 2PM To 10PM Weather Cloudy
[x] Central Standard Time Signed By J. Johnson (Recorder)
[ ] Eastern Standard Time Checked By S. D. Murphy (Party Chief) H. R. Jacobson (Dist. Supervisor)

1	2	3		4	5		6	7		8	9	10	11	12	13		14	15	16	17	18	19	20	21	22	23	24	25	26
															Length			Vehicle Loads and Weights										
State of Registration	Registration Class	License Number	No. of Tags	Make and Year	Type of Vehicle	No. of Trailers	Type of Body	Manufacturers Rated Capacity or Seating Capacity Tons or Lbs. or No. of Persons	Manufacturers Gross Weight Rating	Commodities Carried or Number of Passengers	Tire Equipment	Tire Size in Inches	Tire Carrying Capacity	Overall Width in Feet and Tenths	Overall Feet and Tenths	Wheel Base Feet and Tenths	Maximum Height Feet and Tenths	Axle No. 1	Axle No. 2	Axle No. 3	Axle No. 4	Axle No. 5	Loaded Weight	Empty Weight	Carried Load	Total Train Weight	Maximum Axle	Axle Arrangement	Ratio of Max. Axle To Total Load
Ga.	1⅛B	85103	2	Chev. 36	TT	1	CH	1⅛L	13000	Mixed Freight	PD	36/8			36.2	27.5		3400	11000									
Ga.	3⅛E	343	3	Hobbs 35	ST	0	CO	5E	15000		DD	36/8		7.8			11.9			12000			26400			26400	3		.45
Tenn.	2	22744	1	Int. 37	TK	0	ST	1⅛E	Serial No. 27261	38 Calves	PD	36/8		7.5	23.3	13.2	10.6	3800	10200				14000			14000	2		.73
Ga.	1⅛B	35004	4	Chev. 37	TT	1	CH	2P	12215	Sugar in Sacks	PD	40/8			36.3	27.5		3200	12400									
Ga.	3⅛E	3196	4	Freyhauf 36	ST	0	CO	4E	18000		DD	40/8		7.6			11.7			10800			26400	11040	15360	26400	2		.47

Loadometer Station

Empty Weight Sticker

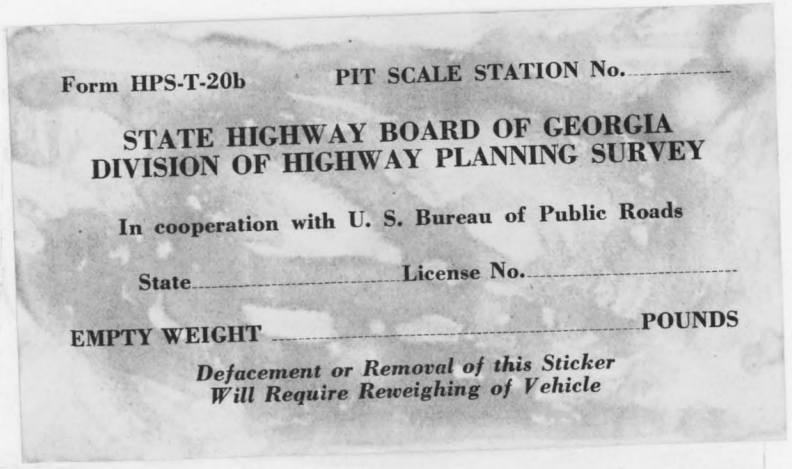
Form HPS T-20a



Pit Scale Station

Empty Weight Sticker

Form HPS T-20b



Form HPS-T-25

STATE HIGHWAY BOARD OF GEORGIA
DIVISION OF HIGHWAY PLANNING SURVEY
In Cooperation with U. S. Bureau of Public Roads

- - -

LOADOMETER TEST SHEET

District No. 1 Party No. DL-1 Date January 5, 1938

Location of Test (Place) Intersection of Ga. #12 & East Atlanta Road Ga. Owner of Scales DeKalb County

1. Loadometer No. 4141

Weight of Wheel No. 1,	Right:	800	Left:	800
Weight of Wheel No. 2,	Right:	800	Left:	800
Weight of Wheel No. 3,	Right:		Left:	
Total Wheel Weight,	Right:	1600	Left:	1600

Total Weight of Vehicle by Loadometer 3200

Total Weight of Vehicle by Scales(Pit) 3180

No. Pounds Loadometer Off (Show plus or minus) +20

2. Loadometer No. _____

Weight of Wheel No. 1,	Right:		Left:	
Weight of Wheel No. 2,	Right:		Left:	
Weight of Wheel No. 3,	Right:		Left:	
Total Wheel Weight,	Right:		Left:	

Total Weight of Vehicle by Loadometer _____

Total Weight of Vehicle by Scales(Pit) _____

No. Pounds Loadometer Off (Show plus or minus) _____

Signed by: R. L. Randolph (Chief of Party)

Approved: Herbert R. Jacobson (District Supervisor)

Form HPS-T-26

STATE HIGHWAY BOARD OF GEORGIA
DIVISION OF HIGHWAY PLANNING SURVEY
In Cooperation with U. S. Bureau of Public Roads

Cartersville, Georgia

February 24, 1938

Mr. O. T. Ray, State Director
Highway Planning Survey
301-306 Bona Allen Building
Atlanta, Georgia

Re: Automatic Traffic Recorder No. 1
Located 5 Miles NW of Cartersville
(Direction) (Town or City)
Route No. - U. S. No. 41 ; Georgia, 3
Adjacent Key Station No. 255

Dear Sir:

I visited this recorder at 12:30 M, February 24, 1938. I am enclosing tape removed from recorder for period beginning 3:00 P M, February 14, 1938, and ending 1:00 PM Feb.24, 1938.

Power failures were noted and exact time and durations were determined from the records of the public utility supplying power (or other reliable source) as follows: None

Equipment failures were as follows: (Show time, duration and type failures)

None

If bulbs were changed since last report indicate: Right: No (Date)
Left: No (Date)

Remarks: Manual count made from 12:30 PM to 1:00 PM and compared with automatic count. Results checked.

Yours very truly,

Herbert R. Jacobson
(Name)
District Supervisor
(Title)

encl.

PART V

FINANCIAL SURVEY

Financial Survey

The financial survey embraces a detailed study and analysis of income and expenditures of all governmental units within the state; the relative use of the various types of roads; and the future allocation of public tax money for highway improvements. The entire financial study is divided into three sections as follows:

1. Fiscal Survey
2. Road Use Survey
3. Motor Vehicle Allocation Survey

Fiscal Survey

The purpose of the fiscal survey is to thoroughly study and analyze the tax structure of the entire state in order to estimate the financial resources which will be available for investment in a highway program of the future. To this end, a knowledge of all highway tax resources; Federal, State, County and Municipal, is essential. Due to the overlapping of receipts and expenditures in all units of government and the need for a comparative study of all taxes, it is impossible to segregate the study of highway tax resources without also studying the entire tax structure of the State.

The study of all tax records shall extend over the period of one calendar year, preferably the year just ended. The units of government to be studied shall be the State, the Counties, the Municipalities, and their respective Boards of Education; and any other units of government such as special highway districts, drainage districts, and independent school districts. The population figures published by the United States Bureau of Census,

shall be used as the basis for dividing all governmental units into two general classes, namely, rural areas and urban places. These two general classes shall in turn be subdivided into the following population groups:

Unincorporated Areas

Class A - 2500 or more and population density of 1000 or more per square mile

Class B - All other unincorporated areas

Incorporated Places

Class 1A - 1000 and under

Class 1 - 1001 to 2500

Class 2 - 2501 to 5000

Class 3 - 5001 to 10000

Class 4 - 10001 to 25000

Class 5 - 25001 to 50000

Class 6 - 50001 to 100000

Class 7 - 100001 to 250000

Class 8 - 250001 to 500000

Class 9 - 500001 to 1000000

Class 10 - Over 1000000

All data shall be obtained from existing records of the year under study in each of the governmental units. The duty of collecting this data shall be performed by ten field auditors whose sole duty is to report all tax receipts and expenditures, as recorded, regardless of personal opinion as to their validity or the method of accounting. Only when all field auditing has been completed and a comparative study has been made of all units of government will it be feasible or advisable to criticize discrepancies or suggest changes in the method of accounting.

Tabulation of financial data shall be made on Form FS-1 (see sample form). This form is divided into three sections which shall be used for the following tabulation purposes:

Section 1 - Show total receipts for current and non-current, local and non-local purposes in their respective columns and according to the source of revenue.

Section 2 - List all commitments, according to the source of revenue, segregating those legally restricted to the payment of debt principal from those specifically allocated for other governmental units and not currently available for local purposes.

Section 3 - Tabulate all funds according to the source of revenue which are available for all local current and non-current purposes.

Tabulation of all financial data shall be done with respect to the various sources of revenue. These sources of revenue are listed in the column headed 'Items', and are to be determined in accordance with the following explanation:

1. Total tax levies is the summation of general property levies and special assessments.
2. The general property tax pertains to the direct tax on real and personal property located within a general tax district and imposed at a uniform rate, but should not include the tax imposed on motor vehicles.
3. Special assessments are those levies exacted to defray the cost of specific improvements and are based upon

the assumption of increased value on property affected by these improvements. A special assessment differs from a general property tax, in that the former is levied upon a specific group of properties, whereas, the latter is levied upon a general class of individual properties at a uniform rate.

4. The total property tax collections is the sum of the general tax and the special assessment collections.
5. Total general tax collections is the sum of collections received from the current and delinquent property tax.
6. The current general property tax collection is the actual receipt of taxes levied within the base year.
7. Delinquent general property tax collections are those derived from delinquencies of payment.
8. Special assessments are those total collections of this type of taxes, current and delinquent.
9. Other local revenues is the total of motor vehicle and other special imposts and all other general revenues.
10. Motor vehicle imposts are local taxes levied against ownership and operation of motor vehicles.
11. Other special imposts are those collected from special local tax levies.
12. Other general revenues include all earnings accrued from interest, fees, fines, and profits on incomes derived from any public service enterprise.
13. Total local taxes and revenues is the sum of total property tax collections and other local revenues.
14. Total state-administered revenues is the sum of the

subventions, shared taxes, state-administered local taxes and special aids.

15. Subventions are the amounts of monetary assistance rendered by another governmental unit, regularly established and governed by specific enactments.

16. Shared taxes are those collected under state authority and distributed to local divisions without losing their identity. Subventions differ from shared taxes in that they bear no direct relationship to the amounts derived from the residents of any one particular unit of government.

17. Local taxes are those belonging strictly to a local unit of government but administered by the state.

18. Special aids are grants provided infrequently, by the state, for temporary or emergency needs.

19-23. The description set forth above for the state-administered revenues applies to county-administered revenues except for the unit of government administering the revenues.

24. Federal aids include all temporary or emergency aid received direct from the Federal Government, but does not include PWA and RFC loans which are to be shown as borrowings.

25. Total non-local taxes and revenues is the sum of total state-administered revenues, total county-administered revenues, and federal aids.

26. Total borrowings is the sum of temporary loans and bonds.

27. Temporary loans include all assumed floating and unfunded obligations.

28. Bonds include all incurred forms of bonded or fixed indebtedness.

29. Total current receipts is the sum of total local taxes and revenues, total non-local taxes and revenues, and total borrowings.

30. Decrease in balances is the item derived from an analysis of balances at the beginning and end of the year in order that total non-local taxes and revenues may equal the sum of net direct expenditures, total debt retirements, aids and grants paid, and increase in balances.

31. This total is the sum of total current receipts and decrease in balances.

32. Direct expenditures, other than interest, are the total amounts expended by governmental units for current purposes including those allocated to other units of government, but excluding aids and grants.

33. Temporary loan interest paid is the interest paid on all floating and unfunded obligations.

34. Bond interest paid is the interest paid on bonded or fixed indebtedness.

35. Gross direct expenditures is the sum of the direct expenditures other than interest, temporary loan interest paid, and bond interest paid.

36. Deductions from gross expense include non-governmental deductions, which are commercial earnings accruing

from the sale of materials or services in excess of public requirements, and governmental deductions, which result from contractual agreements whereby one unit of government performs services or furnishes goods to another.

37. Net direct expenditures is the difference between gross direct expenditures and the deductions from gross expenditures.

38. Total debt retirement is the sum of temporary debt and bonded debt retirements.

39. Temporary debt retired is the amount of unfunded or floating obligations retired.

40. Bonded debt retired is the amount of bonded or fixed indebtedness retired.

41. Aids and grants paid include all financial assistance to other governmental units.

42. Total current expenditures is the sum of the net direct expenditures, total debt retirements, and aids and grants paid.

43. Increase in balances is the item used to balance Item 31 with Item 44 in order that these two items may be equal.

44. Total is the sum of total current expenditures and the increase in balances. This amount should balance with Item 31.

45. Total debt service is the sum of the interest paid on temporary loans, the interest paid on bonds, and the total debt retirements.

46. Total debt outstanding is the sum of outstanding temporary and bonded debts.

47. Temporary debt outstanding includes all outstanding unfunded or floating obligations.

48. Bonded debt includes all forms of outstanding bonded or fixed indebtedness.

49. Debt reserves include the book value of all sinking and debt retirement fund investments and the cash balance of such funds on hand.

50. Net debt is the difference between the total outstanding debt and the debt reserves.

Balances. The special schedule in the right hand corner of the form provides for a special analysis of balances to take care of various types of funds existing in any governmental unit.

All receipts shall be tabulated in their respective columns under the following main headings:

1. Highways
2. Other public functions
3. General fund
4. Grand total

Tabulation of these receipts shall indicate the amount legally allocated to each specific classification and to no other. No analysis will be attempted of receipts classified under the heading of General Fund.

Proper tabulation of receipts shall be based upon the following description of column classification:

A. Construction covers the cost of additions and better-

ments to the highway system, including right-of-way purchases.

B. Maintenance includes all expenditures necessary to preserve and keep each type of roadway structure and facility as nearly as possible in its original condition of construction, or improved to provide satisfactory service. Cost of maintenance should be separated as to maintenance of condition and maintenance of operation.

C. Other highway expenditures includes all items of overhead. Cost of highway patrol and municipal traffic police shall be recorded separately from regular municipal or state police systems, in order to obtain a true estimate of such service.

D. Total of all receipts listed under the main heading, 'Highways'.

E. Education covers the cost of all educational facilities such as schools, libraries, and museums.

F. Public welfare and services embraces all functions of general welfare such as personal and property protection, health and sanitation, conservation of natural resources, and charitable and recreational facilities.

G. General government expenses cover the cost of the legislative, executive, and judicial functions of government.

H. Total of all costs under the main heading, 'Other Public Functions'.

I. General fund includes all receipts not specifically allocated to any other classification.

J. Grand total of all expenditures listed.

Special analysis of Highway Finances:

It is necessary to give special consideration to the study of highway financial data in order to definitely determine the sources of revenue and expenditure. Sources of revenue shall be determined as coming from the following:

1. Taxes derived from motor vehicle registration fees and motor fuel taxes.
2. Property taxes, special imposts, subventions and aids, borrowings, reserves, and balances.

Expenditures shall be segregated as to primary, secondary, or tertiary systems, and shall be classified according to the following:

1. Road construction
2. Bridge construction
3. Right-of-way
4. Maintenance of condition
5. Maintenance of operation
6. Interest expense
7. Other

Road Use Survey

A road use survey provides the basis for determining the relative use of various roads and types of roads, by the residents of a state. The data compiled by this survey will be classified according to population groups and counties, showing not only the total mileage traveled on the various systems by vehicles registered in the state, but also the actual source of all traffic by these population groups and by counties. It will permit us to analyze the actual utilization by motorists of urban

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Alignment, Grade and Visibility

Sharp Curve with Limited Sight Distance

and rural portions of the state highways, of county roads, and of city streets.

Several important factors of highway planning can be determined from this study, namely:

1. The total amount of travel on various roads, and types of roads in a given area.
2. The amount of travel on all highway systems of a state by vehicle owners residing in each distinctive type or locality.
3. Comparison of the total traffic carried by various types of roads and city streets, and the relationship of this traffic to the several systems.
4. Relationship between the individuals producing this traffic and those providing the revenues for building and maintaining the roads.

Information is obtained by personally interviewing representative car and truck owners throughout the state as to where, how far, and for what purpose they drove their vehicles during the preceding twelve month period. This same information should be obtained from commercial vehicle owners such as bus and truck operators. Selection of representative vehicle owners should be carefully made in order that the individuals, who are to be interviewed, may represent the various population classes, both urban and rural, and the various occupational classes.

A special interview form (see sample Form RU-1) shall be used in collecting information for the road use survey. The following information shall be obtained in order to properly fill out the form:

1. Purpose of travel and route followed. The purpose of

the trip shall be classified under the various subdivisions of business and pleasure as indicated on the form.

2. The number of round trips for each type of trip and the miles per round trip.
3. Total miles traveled in the state and out of the state for each type of travel.
4. Total miles traveled on primary state highways, on secondary highways, and on local roads and streets respectively. This total shall then be separated as to the amount of mileage traveled on strictly rural sections of the primary and secondary roads and the amount of mileage traveled on strictly township sections of the local roads and streets.
5. The name, postoffice and legal address, and occupation of the person interviewed.
6. Make, model, net weight or capacity, license fee paid, average miles per gallon, gallons of gasoline consumed in the state for each individual car or truck being operated.
7. Number of counties traveled in other than that of residence, number of other states traveled in, and the miles to farthest point of destination.
8. Distance the owner lives from a primary state highway, secondary highway, and township or county road.

Motor Vehicle Allocation Survey

The purpose of motor vehicle allocation studies is to secure and analyze information relative to the distribution or location of motor vehicles and to fees and fuel taxes paid by owners of

these vehicles so as to classify this information by counties, by rural and urban areas, and by population groups for urban areas.

The data necessary for an analysis of this study is obtained from all motor vehicle owners by means of questionnaire cards, Form HPS-325 and Form HPS-326 (see sample forms). These cards shall be filled in by the owners for every motor vehicle in their possession and shall contain the following information:

1. Type of vehicle
2. Place of ownership or headquarters for vehicle by county, city, or nearest city if outside of corporate limits
3. Make and year model of vehicle
4. Whether vehicle was new at time of purchase
5. Present speedometer reading
6. Total number of miles traveled during the year under study, and the number of miles traveled within the state under study
7. Average number of miles per gallon of gasoline
8. Whether mileage and gasoline consumption was obtained by estimate or from actual records
9. If a bus or truck, the amount of maintenance tag fee paid; the factory weight and seating capacity
10. Occupation of owner
11. If the vehicle is for hire or not in case it is a truck

Additional information, obtained from the various governmental units, will be necessary in order that accurate and complete information will be available for a comprehensive compilation of all data. The information obatined as a result of this study

shall be tabulated according to population group and type of vehicle into the following classification tables for the year under study:

1. Motor vehicle registration
2. State, county, local, and total motor vehicle imposts
3. State registration fees paid by owners of various types of vehicles
4. State motor fuel taxes paid by owners of various types of vehicles
5. Average number of miles traveled and gallons of gasoline consumed in state per vehicle
6. Average total number of miles traveled and gallons of gasoline consumed irrespective of the state under study
7. Average state motor fuel taxes and registration fees paid per vehicle
8. Frequency distribution of passenger cars and trucks according to miles traveled
9. Relation of annual average mileage travel and gasoline consumption as reported by vehicle owners on basis of estimates and actual records
10. Percentage distribution of passenger cars by weight classes
11. Percentage distribution of trucks by rated capacity
12. Registered vehicles classified according to average number of miles traveled by vehicles in each year model group
13. Average miles per gallon of gasoline consumed by passenger cars in different weight classes
14. Average miles per gallon of gasoline consumed by trucks

in different capacity classes

15. Percentage distribution of passenger cars and trucks according to year models
16. Average miles per gallon of gasoline consumed by light, medium and heavy passenger cars according to miles traveled
17. Average miles per gallon of gasoline consumed by trucks of various rated capacities according to miles traveled.

HIGHWAYS				OTHER PUBLIC FUNCTIONS				GENERAL FUND	GRAND TOTAL	ITEM COMPOSITION	ITEMS	SECTION II — COMMITMENTS							SECTION III — CURRENTLY AVAILABLE FOR LOCAL PURPOSES			
												DEBT			FOR OTHER GOVERNMENTS			TOTAL				
CONST.	MAINT.	OTHER	TOTAL	EDUCATION	PUBLIC WELFARE & SERVICES	GENERAL GOV'T	TOTAL					HIGHWAYS	OTHER	TOTAL	HIGHWAYS	OTHER	TOTAL		HIGHWAYS	OTHER	GENERAL FUND	TOTAL
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
										2 + 3	(1) TOTAL TAX LEVIES											
											(2) GENERAL PROPERTY											
											(3) SPECIAL ASSESSMENT											
										5 + 6	(4) TOTAL PROPERTY TAX COLLECTIONS											
										6 + 7	(5) TOTAL GENERAL											
											(6) CURRENT											
											(7) DELINQUENT											
											(8) SPECIAL ASSESSMENT											
										10 + 11 + 12	(9) OTHER LOCAL REVENUES											
											(10) MOTOR VEHICLE IMPOSTS											
											(11) OTHER SPECIAL IMPOSTS											
											(12) OTHER GENERAL REVENUES											
										4 + 9	(13) TOTAL LOCAL TAXES AND REVENUES											
										15+16+17+18	(14) TOTAL STATE-ADMINISTERED REVENUES											
											(15) SUBVENTIONS											
											(16) SHARED TAXES											
											(17) STATE-ADMINISTERED LOCAL TAXES											
											(18) SPECIAL AIDS											
										20+21+22+23	(19) TOTAL COUNTY-ADMINISTERED REVENUES											
											(20) SUBVENTIONS											
											(21) SHARED TAXES											
											(22) COUNTY-ADMINISTERED LOCAL TAXES											
											(23) SPECIAL AIDS											
											(24) FEDERAL AIDS											
										14 + 19 + 24	(25) TOTAL NON-LOCAL TAXES AND REVENUES											
										27 + 28	(26) TOTAL BORROWINGS											
											(27) TEMPORARY LOANS											
											(28) BONDS											
											(29) TOTAL CURRENT RECEIPTS											
											(30) DECREASE IN BALANCES											
										13+25+26+30	(31) TOTAL											
											(32) DIRECT EXPENDITURES OTHER THAN INTEREST											
											(33) TEMPORARY LOAN INTEREST PAID											
											(34) BOND INTEREST PAID											
										32 + 33 + 34	(35) GROSS DIRECT EXPENDITURES											
											(36) DEDUCTIONS FROM GROSS											
										35 - 36	(37) NET DIRECT EXPENDITURES											
										39 + 40	(38) TOTAL DEBT RETIREMENTS											
											(39) TEMPORARY DEBT RETIRED											
											(40) BONDED DEBT RETIRED											
											(41) AIDS AND GRANTS PAID											
											(42) TOTAL EXPENDITURES											
											(43) INCREASE IN BALANCES											
										37+38+41+43	(44) TOTAL											
										33 + 34 + 38	(45) TOTAL DEBT SERVICE											
										47 + 48	(46) TOTAL DEBT OUTSTANDING											
											(47) TEMPORARY											
											(48) BONDED											
											(49) DEBT RESERVES											
										46 - 49	(50) NET DEBT											

BALANCES				
FUND	OPENING	CLOSING	INCREASE	DECREASE
HIGHWAY				
GENERAL				
ETC.				
SINKING FUND				

FS 1: 6-1-36

THE _____ DEPARTMENT
OF HIGHWAYS

NO. _____

STATE OF _____

MILES TRAVELED BY MOTOR VEHICLE OWNERS

SURVEY OF HIGHWAY FINANCE
AND ROAD USE IN _____

DISTRIBUTION OF TRAVEL BY HIGHWAY SYSTEMS AND CLASSES OF GOVERNMENTAL UNITS

PURPOSE OF TRAVEL AND ROUTE FOLLOWED	NO. OF ROUND TRIPS	MILES PER ROUND TRIP	TOTAL MILES		ON PRIMARY STATE HIGHWAYS									ON SECONDARY HIGHWAYS									ON LOCAL ROADS AND STREETS								
			IN STATE	OUT	TOTAL	RURAL	PL. 1	PL. 2	PL. 3	PL. 4	PL. 5	PL. 6	PL. 7	TOTAL	RURAL	PL. 1	PL. 2	PL. 3	PL. 4	PL. 5	PL. 6	PL. 7	TOTAL	TWP. ROADS	PL. 1	PL. 2	PL. 3	PL. 4	PL. 5	PL. 6	PL. 7
BUSINESS TRIPS																														
1. TO BUSINESS																														
2. BUSINESS TRIPS																														
3. HAULING MILK, ETC.																														
4. TO MARKET																														
5. TO R.R. STATION																														
6. SHOPPING																														
7. CHILDREN TO SCHOOL																														
PLEASURE TRIPS																														
1. TO CHURCH																														
2. TO THEATRE																														
3. TO DANCES																														
4. TO GAMES																														
5. VISITING																														
6. SUNDAY																														
7. EVENING																														
8. WEEK END																														
9. HOLIDAY																														
10. VACATION																														
11. HUNTING																														
12. FISHING																														
MISCELLANEOUS DRIVING AROUND																														
TOTAL MILES IN STATE																														
		MILES OUT OF STATE																												
		TOTAL MILES																												

NAME _____

P.O. ADDRESS _____

_____

LEGAL RESIDENCE IN { TOWNSHIP _____ / CITY _____

IN THE COUNTY OF _____

OCCUPATION _____

PASSENGER CAR MAKE _____ MODEL _____

MOTOR TRUCK MAKE _____ MODEL _____

NET WEIGHT _____ CAPACITY _____

LICENSE FEE PAID _____

AVERAGE MILES PER GALLON _____

GALLONS OF GAS CONSUMED IN STATE _____

DOES OWNER KEEP RECORDS ? _____

VEHICLE TRAVELED IN _____ COUNTIES OTHER THAN THAT OF RESIDENCE

NUMBER OF OTHER STATES TRAVELED IN _____

FARTHEST DESTINATION WAS APPROXIMATELY _____ MILES

DISTANCE OWNER LIVES FROM { PRIMARY STATE HIGHWAY _____ / SECONDARY HIGHWAY _____ / TOWNSHIP ROAD _____

REMARKS: _____

INTERVIEW SECURED BY _____ DATE _____ CHECKED BY _____

Motor Vehicle Allocation Survey

Questionnaire Card

Form HPS-325 DETACH AND MAIL NO POSTAGE REQUIRED

(Use this card for one vehicle only) (Check type of vehicle below)

PASSENGER CAR ☐ HEARSE ☐ TAXI-CAB ☐ AMBULANCE ☐ BUS ☐

LEAVE THIS COLUMN BLANK

1. HEADQUARTERS FOR ABOVE VEHICLE (Place where it is usually kept or garaged)
   (a) Name of County _____
   (b) If within corporate limits of a City or Town, give name _____
   (c) If outside corporate limits of a City or Town, check here _____
2. GIVE MAKE _____ AND YEAR MODEL _____ OF VEHICLE YOU NOW OPERATE.
3. DID YOU PURCHASE THIS VEHICLE NEW? _____
4. PRESENT SPEEDOMETER READING _____ MILES
5. GIVE MILES ABOVE VEHICLE WAS DRIVEN DURING 1937; OR IF YOU CHANGED VEHICLES DURING 1937 GIVE COMBINED TRAVEL FOR BOTH VEHICLES:
   (a) Total miles traveled regardless of States _____
   (b) Total miles traveled in Georgia _____
6. AVERAGE NUMBER OF MILES OBTAINED PER GALLON OF GASOLINE _____
7. ARE THE ANSWERS TO QUESTIONS 5 AND 6 BASED ON: Estimates _____ or Records _____ (Check one)
8. IF BUS, SHOW: $_____ (Maintenance tag fee paid); _____ (Factory Weight); _____ (Seating Capacity)
9. WHAT IS YOUR OCCUPATION? _____

Form HPS-325

Form HPS-326 DETACH AND MAIL NO POSTAGE REQUIRED

TRUCK ☐ TRACTOR-TRUCK ☐

(Use this card for one vehicle only) (Check type of vehicle)

LEAVE THIS COLUMN BLANK

1. HEADQUARTERS FOR ABOVE VEHICLE (Place where it is usually kept or garaged)
   (a) Name of County _____
   (b) If within corporate limits of a City or Town, give name _____
   (c) If outside corporate limits of a City or Town, check here _____
2. GIVE MAKE _____ AND YEAR MODEL _____ OF VEHICLE YOU NOW OPERATE.
3. DID YOU PURCHASE THIS VEHICLE NEW? _____
4. PRESENT SPEEDOMETER READING _____ MILES
5. GIVE MILES ABOVE VEHICLE WAS DRIVEN DURING 1937; OR IF YOU CHANGED VEHICLES DURING 1937 GIVE COMBINED TRAVEL FOR BOTH VEHICLES:
   (a) Total miles traveled regardless of States _____
   (b) Total miles traveled in Georgia _____
6. AVERAGE NUMBER OF MILES OBTAINED PER GALLON OF GASOLINE _____
7. ARE THE ANSWERS TO QUESTIONS 5 AND 6 BASED ON: Estimates _____ or Records _____ (Check one)
8. SHOW: $_____ (Maintenance Tag Fee Paid) and _____ (Factory Weight)
9. IS THIS VEHICLE OPERATED FOR HIRE? _____
10. WHAT IS YOUR OCCUPATION? _____

Form HPS-326

PART VI

ROAD LIFE STUDY

Road Life Study

The purpose of a Road Life Study is to determine the average service life, rates of retirement, and annual roadway cost for each type of surfacing on all roads included in the State primary system. Life tables and curves, similar to birth, death, and population tables for human beings, will be developed from a year by year study of construction and retirement in order to determine the probable average service life and rates of retirement. Annual roadway cost will then be determined from a combined study of the average service life, construction and maintenance cost and probable salvage value.

Definitions:

Road surface is any roadway surface material other than natural earth.

Road surface life is the number of years that a section of surface is actually used before being abandoned or changed by reconstruction.

Road surface retirement or death is the removal from service of any section of road surface.

Road surface transfer is continuation of service as part of another road or street system.

Highway maintenance is the preservation of each type of roadway, structure, and facility as nearly as possible in its original condition of construction. General maintenance does not include reconstruction, resurfacing, widening, or any addition or betterment.

Salvage value is the percentage of original cost utilized in the reconstructed roadway.

Dual type pavement is one with a surface consisting of two or more types.

The Road Life Study may be broken down into three main divisions as follows:

1. Construction and retirement mileage by each separate construction contract
2. Cost of construction of each contract
3. Cost of maintenance and betterment by road sections

Information compiled in the first two divisions shall be tabulated on Form RL-1 (see sample form), and that in the last division on Form RL-2 (see sample form). The source of information shall be the records of the State Highway Department.

Form RL-1

Information shall be tabulated on Form RL-1 (see sample form), according to the following general descriptions:

Section 1:

Surface: Show cross sectional thickness and describe in detail the wearing course, using the same classification as listed under Road Inventory. If the surface is bituminous, the number of applications or courses shall be stated, whether a hot or cold mix was applied, and whether the method of preparation was by stationary or traveling plant or road mix.

Base and Foundation: Show cross section of base material and foundation and describe the type of each. The base shall be considered as any prepared course directly beneath the wearing surface and the foundation as the prepared course between the base and the natural earth sub-

grade.

Subgrade: Indicate the type and kind of treatment given to the subgrade.

Seal: Give description of the seal coat and indicate the amount and kind of bitumen and sand or pea stone used.

Bitumen: Give the amount and kind of oil, tar, asphalt or other bituminous material used.

Portland Cement: State whether the portland cement used was standard portland, high strength, high-early strength, or other special type, and give brands. If calcium chloride was added to the mix, this shall be noted.

Fine Aggregate: Describe the kind, source, and grading of the fine aggregate used in concrete and bituminous mixes.

Coarse Aggregate: Use same proceedure as for fine aggregate.

Proportioning: State whether the method of proportioning the mix was by weight, volume, or design, and indicate what proportion was used.

Curing: Show whether curing was done by burlap, earth, ponding, calcium chloride, or other means and note length of curing time.

Strength of Concrete: Give average strength and age of concrete cylinders or beams at the time of construction and the strength of cores at a later date as determined by tests.

Pavement Steel: Describe the steel used in the pavement as to size, kind, type, and placement spacing.

Contraction and Expansion Joints: Give kind and placement spacing of expansion joints and indicate type of joint filler used whether sealing was from subgrade.

Longitudinal Center Joints: Show type, size, and spacing of steel for longitudinal center joint.

Shoulders: Note width of shoulder and the type, whether earth, gravel, or bituminous.

Right-of-Way: Give width of the right-of-way, indicating the length of various widths.

Section 2:

Bridges: All bridges, with spans of twenty feet or more in length, shall be described. Bridges constructed under separate contract shall be listed on separate sheets.

Section 3:

Construction Costs: Show total cost including contract payments, force accounts, state-furnished materials, and other. Additional items such as roadside development, traffic signs and markers, guard rails, and administration may be separated.

Section 4:

Describe the construction location by survey stations or mile post at the beginning and end of the project, also by termini, such as state and county lines, city limits, and route intersections.

Section 5:

This section is self-explanatory.

Section 6:

List each retirement resulting from each improvement, indicating the reason for and the method of retirement, and the type of replacement as follows:

Reason for Retirement:

1. Unclassified

2. Surface, base, and structural failures
3. Failure of surface
4. Failure of base
5. Failure of foundation or subgrade
6. Obsolescence
7. Relocation of curves and alignment
8. Grade reductions
9. Change to another or same type to meet traffic demands as to capacity, speed, and load
10. Combination of surface and structural failures and change to another or same type to meet traffic demands
11. Related highway improvements
12. Widening operations
13. Grade separations
14. Bridges and drainage structures
15. Intersections, cross-overs, and traffic circles
16. Public and private construction of dams, reservoirs, canals, sewers, and buildings
17. Catastrophes
18. Transfer by relocation of roads to another public authority which will continue the road in use.

Method of Retirement:

1. Torn up, no attempt at salvage
2. Used as a base for new surface
3. Used as a foundation for new pavement
4. Abandoned in place, not to be used further
5. Returned to another authority and continued as a public highway

Type of Replacement:

1. New construction
2. Resurfacing, same type
3. Resurfacing, different type
4. Replacement by new surface and new base, same or different type and same or greater width; old surface not saved
5. Change in alignment, vertical and horizontal
6. Widening, only when existing surface remains in use
7. Grade crossing
8. Bridge construction

Section 7:

Describe any unusual features under remarks.

Section 8: (Reverse side)

Separate contract costs and payments according to their specific divisions.

Section 9:

Indicate any unusual costs or payments under remarks.

Form RL-2

A separate study should be made of general maintenance cost, the cost of additions and betterments, and the cost of reconditioning. The study should cover as many years of the immediate past as there are suitable records available. The total cost of each operation shall include all direct and indirect charges, such as labor, consumable supplies, road equipment charges, direct overhead and supervision, and administrative costs. Detours shall be scheduled as a separate operation or as a temporary maintenance section.

All pertinent information shall be tabulated on Form RL-2

(see sample form), according to the following classifications:

Section 1:

Give detailed description of the maintenance section under investigation.

Section 2:

Describe each construction section embraced by the maintenance section being studied.

Section 3:

Tabulate by each year the average twenty-four hour density count for passenger cars, trucks and busses, and total traffic moving over each section.

Maintenance costs for all items numbered from 100 to 160, inclusive, shall be separated as to routine work and periodic work as follows:

Routine Work:

1. Patching holes, rough spots, ruts, blow-ups, and raveled edges; cleaning and clearing surface
2. Filling and trimming expansion joints and cracks
3. Sanding bleeding spots and spot sealing
4. Dragging, blading, reshaping, and scarifying
5. Repairing and maintaining the base, foundation and subgrade, and removing ledge rock
6. Mud jacking
7. Towing vehicles through mud holes and laying and removing temporary traffic ways

Periodic Work:

1. Applying dust palliatives
2. Replacing sand, gravel, crushed stone, chert and other loose surfaces with the same or similar

material to thickness of less than one inch

3. Reconditioning bituminous mats with the addition of little of no new oil or gravel
4. Treating bituminous surfaces, seal coating, and applying light road mixes to a thickness of three quarters of an inch or less in one operation

Shoulder and side approach costs (item 170) include:

1. Patching, dragging, blading, filling ruts and washouts
2. Replacing earth, gravel, and other shoulder materials
3. Reseeding and resodding shoulders
4. Bituminous treating without excavation

Drainage and roadside costs (items 180 and 190) embrace the following charges:

1. Repairing cuts, fills, back slopes, washouts, land slides, and bank protection
2. Cleaning and retrenching open drains, channels and ditches, and cleaning culverts
3. Removing wrecks, debris, fallen trees and advertising signs, and moving and repairing fences
4. Cutting and eradicating weeds, clearing brush, trimming trees, planting and sodding to prevent erosion

Drainage structures (item 200), with a span of less than twenty feet, shall include charges for:

1. Repairing
2. Repainting
3. Reflooring

Bridges and viaducts (item 210), with a span of over

twenty feet and under one hundred feet, shall include the same costs as for drainage structures (item 200). Structures with a span of over one hundred feet shall be considered as a separate maintenance section.

Roadside development costs (item 220) shall include:

1. Replacing trees and shrubs
2. Trimming trees and shrubs
3. Mowing
4. Watering
5. Fertilizing
6. Lighting

Snow and ice control charges (item 230) embrace the following:

1. Installing snow fences
2. Removing snow fences
3. Removing snow and ice
4. Sanding icy surfaces

Traffic service costs (item 240) include:

1. Repairing and painting markers, signals, and gates
2. Painting guide lines
3. Repairing and painting guard rail
4. Lighting the highway and operating signals
5. Operating comfort stations and picnic grounds
6. Directing traffic temporarily during floods or washouts and periods of congestion

Miscellaneous structure charges (item 250) include the cost of repairing and maintaining the following structures:

1. Sidewalks
2. Dykes

3. Retaining walls

4. Rip-rap

5. Pumping stations

Extraordinary maintenance costs (item 360), incurred by floods, storms, fires, and earthquakes, include:

1. Repairing the surface

2. Repairing the shoulders

3. Repairing the roadside

4. Repairing the structures

5. Dynamiting ice to protect bridges

Non-maintenance administrative, engineering and other functional charges (item 270) cover the cost of the following:

1. Traffic counts

2. Operating pit scales

3. Crack and condition surveys

4. Logging route mileage

5. Right-of-way project and section markers

Section 4: (Reverse side)

Addition and betterment costs shall be segregated from general maintenance costs, and shall be separated as to charges incurred by the various items listed under this section.

Surface, base, foundation and subgrade costs (items 10 and 20) shall include:

1. Widening curves, surfaced width, or intersections

2. First seal coat, if added within ninety days after construction

3. Building new curb

4. Filling expansion joints left open on construction

5. Frost boil prevention work
6. Additional sub-surface drainage

Shoulder and side approach costs (item 30) embrace the following charges:

1. First graveling of earth shoulders, approaches and turnouts
2. First bituminous treatment of plain surfaced shoulders
3. First bituminous ribbons along edge of pavement when shoulders are excavated and gravel added
4. Building approaches and farm entrances
5. Widening shoulders

Drainage and roadside costs (items 40 and 50) include:

1. Purchase of additional right-of-way for curve widening
2. Erecting permanent snow fences or planting permanent snow screens
3. Building fences
4. Raising, lowering or widening grade
5. Widening cuts
6. Back sloping

Drainage structure expenditures (item 60) include:

1. Extending old culverts
2. Building new culverts
3. Building new wing walls to old or new drainage structures

Roadside development charges (item 70) cover the cost of original landscaping projects.

Traffic service costs (item 80) embrace the following

items:

1. Original installation of traffic controls, markers, and safety signs
2. Constructing traffic circles
3. Installing original or additional guard rail
4. Constructing comfort stations, picnic grounds, and roads to scenic or historical points

Miscellaneous structure costs (item 90) include:

1. Constructing new retaining walls
2. Building revetments
3. Installing rip-rap
4. Constructing channel changes

Section 5:

This section is self-explanatory.

Section 6:

The length and termini of each maintenance section and the portion upon which work was performed shall be indicated by the year.

Form RL-1

_____ STATE HIGHWAY DEPARTMENT

CONSTRUCTION AND RETIREMENT RECORD

Project No. _____
Length _____
Card No. _____

1. DESIGN AND CONSTRUCTION FEATURES

Surface			
Base and Foundation	X-Section and description		
Subgrade	X-Section and description		
Seal Coat	Treatment		Kind
Bitumen	Amount		Kind
Portland Cement	Amount		Kind
Fine Aggr.	Source		Kind
Coarse Aggr.	Source		Kind
Proportioning	Source		Kind
Curing			
Strength Conc.			
Pavement Steel	Age, Cyl.	Age, Beam	Age, Core
Contr. & Exp. Jts.			
Long Ctr. Jts.	Spacing	Kind	
Shoulders			R/W
	Width	Type	Width

2. BRIDGES

Type	Station	No. Spans	Total Length	Rdwy. Widfh	Type Rdwy. Surface

3. CONSTRUCTION COSTS

Code	Item	Cost
	Grading, Culv. and Drainage	
	Surface & Base	
	Bridges	
	Traffic Services	
	Engr. & Insp.	
	Total	
	Add'l. R/W	

4. LOCATION

From Sta.

To Sta.

Termini:

5. GEN. DESCRIPTION OF IMPROVEMENT

Item	Name	No. or Code
Div. and Co.		
Pres. State Rt. No.		
Pres. U.S. Rt. No.		
Original Rt. No.		
Road System		
Project Class		
Project No.		
Project Section		
Contract or Auth. No.		
Month and Year Begun		
Month and Year Comp.		
Type		
Width		
Miles Built		
Sq. Yd. Built		
Prev. Type		
Contractor:		

6. RETIREMENTS OF THIS IMPROVEMENT

Location	Miles	Sq. Yd.	Year	Reason	Method	REPLACEMENT CONSTRUCTION			REMAINING	
						Type	Code	Cont. No.	Miles	Sq. Yd.

7. REMARKS:

(Over)

8. CONTRACT COSTS AND PAYMENTS

Contract Price			Payments By		
Additions			Fed. Government		
Extras and Credits			State		
Force Account			County		
Total			City		
Deductions			R.R. Company		
Net Payment					
State furnished Material					
Net Total Cost					

9. REMARKS

(Over)

STATE-WIDE HIGHWAY PLANNING SURVEY

_____STATE HIGHWAY DEPARTMENT

U. S. Bureau of Public Roads

MAINTENANCE COST STUDY

Form RL-2

1. MAINTENANCE SECTION		2. DESCRIPTION OF MAINT. SEC. BY CONSTR. SECS.							
Division No.		Proj. Class							
County		Proj. No.							
Route No.		Proj. Sec.							
Maint. Sec.		Contract No.							
Year Built		Date Comp.							
Surface Type		Surface Type							
Width		Width							
Miles		Miles							
		X-Sec.							

Location:

3. GENERAL MAINTENANCE COSTS (NEAREST DOLLAR)

	Item	1927	1928	1929	1930	1931	1932	1933	1934	1935
	Av. Daily Cars									
	Av. Daily Tr. & Bus									
	Av. Total Traffic									
100	Roadway surface		Note: The cost items to the left							
110	Roadway base		will be the same as adopted by the State.							
120	Roadbed (subgrade)		In the final analysis they can be re-							
130	Dust palliatives		grouped if desirable. If the patrol							
140	Resurfacing, gravel, etc.		sections change identification each							
150	Reconditioning		year it will be best to record only							
160	Surface treating, sealing		one year's maintenance to a sheet. If							
170	Shoulders & approaches		the surface type is changed a new sheet							
180	Right-of-way		should be used for the following year.							
190	Fills, cuts, open drng.		The years to be studied will depend							
200	Drainage structures		upon the records available.							
210	Bridges & viaducts									
220	Roadside development									
230	Snow & ice control									
240	Traffic services									
250	Misc. structures									
260	Extraordinary repair									
270	Adm. & Engr. functions									
	TOTALS									

Form RL-2 (Reverse Side)

4. COST OF ADDITIONS AND BETTERMENTS

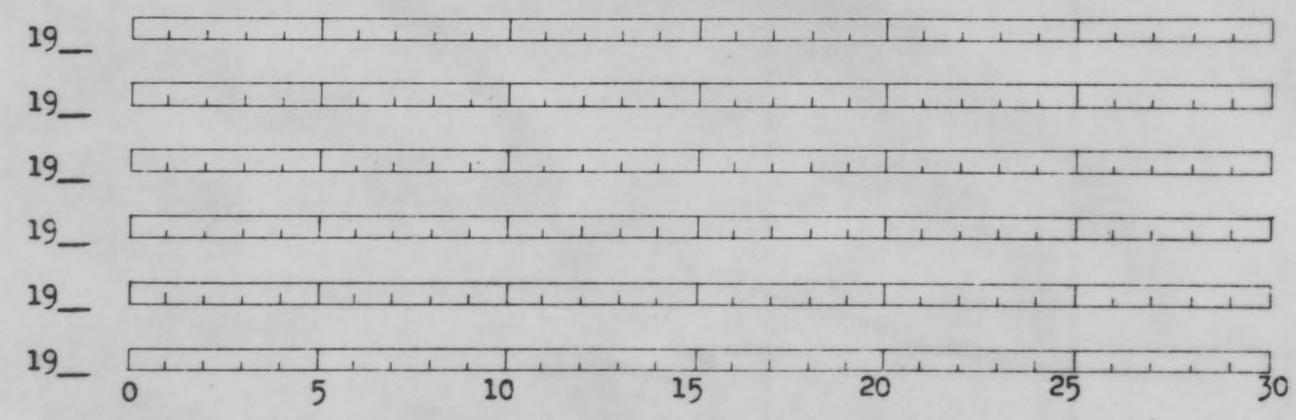
	Item		1928	1929	1930	1931	1932	1933	1934	1935
10	Surface & base									
20	Roadbed (subgrade)									
30	Shoulders & approaches									
40	Right-of-way									
50	Fills, cuts, open drng.									
60	Drainage structures									
70	Roadside development									
80	Traffic services									
90	Misc. structures									
	TOTAL									

5. GRAVEL RESURFACING, REOILING, RECONDITIONING & SEALING RECORD

5a. Materials and Cost Record

Item	19	19	19	19	19	19
Length resurf. or recond.						
Total cu. yds. aggregate						
Cu. yds. aggregate per mile						
Total gals. oil						
Gals. oil per mile						
Kind & size aggregate						
Kind of oil						
Nature of work						
Total cost of work						
Cost per mile						

5b. Length & termini of Maintenance Section & Portion Worked Upon



Railroad Grade Crossing

View Over Crossing Completely Restricted

PART VII

SUMMARY

Summary

A multitude of situations have arisen as a result of extended highway improvements. The burden of capital investment and maintenance placed upon the users as a whole through the medium of taxes and imposts bears no direct relationship between the users of roads and the type of operation as in the case of urban and rural residents and of commercial and private operations. There has been no generally scientific determination of amounts that should be charged against users of roads under each jurisdiction, nor has there been any accurate application of this principle of user payment.

The state highways, representing about 10 to 12 per cent of the rural mileage and 35 to 37 per cent of use, in recent years received 77 per cent of special taxes and fees. Other rural roads, representing 88 to 90 per cent of the total rural mileage and 16 to 17 per cent of use, received 17 per cent of special taxes and fees. City streets, representing 260,000 miles and 45 to 50 per cent of use, received 6 per cent of special taxes and fees.

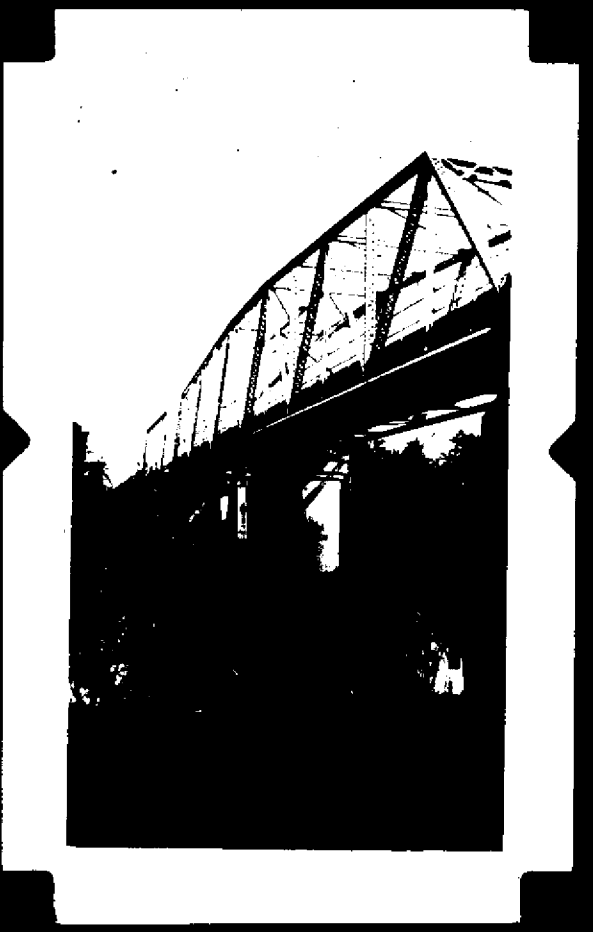
The lack of sufficient and accurate information in the past has greatly impeded intelligent planning and we know that mistakes have been made in promoting or restricting improvements. Highway improvements have been made separately and independently of other forms of transportation, in some cases duplicating these other agencies. They have been made under the aegis of social and political purposes, but have been permitted to be used for commercial purposes without regulatory supervision, resulting in unfair distribution of cost to the non-commercial

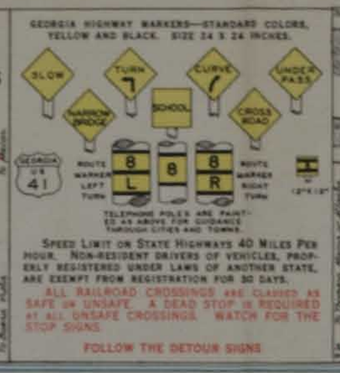
users. Improvements have been made prior to the collection of funds so that the general public is ultimately mortgaged to assure payment. They have been made project by project, under different jurisdictions, but are being used generally by vehicles from many jurisdictions so that fees, taxes and imposts have been expended without due regard to individual improvement. In many instances, these improvements have never been designed, as a private undertaking must be designed, with consistent relation to the carrying facility of highways either as to alignment, grade, width, strength, or surfacing, nor as to safety of railroad crossings and the strength and width of bridges.

Application of the data compiled by the Highway Planning Survey will prove of inestimable value for future planning of highway improvements. The road inventory will provide us with definite information regarding the extent, type and condition of our entire highway system; the traffic survey will indicate the amount and nature of traffic over the various types of roads; the financial survey will permit us to analyze past and future distribution of public taxes with respect to highway expenditures; and finally the road life study will enable us to determine the life expectancy of the various types of roads and to design such roads as are best suited to their own particular purpose.

We must not lose sight of the fact, however, that improvement of our entire highway system is bound up implicitly with the technical advancement of the automotive industry and with the increase of motor vehicle transportation. Therefore, the data secured by this survey must be supplemented by additional information at specified intervals in order to keep the data currently

up to date. If we do not keep our information up to date, we will be as improvident as the man who designs and erects a beautiful and substantial structure and then permits it to deteriorate through lack of proper protection and maintenance.





DESCRIPTIONS OF POINTS OF SCENIC INTEREST

STATE PARKS

FORT MOUNTAIN—12 miles east of Chatsworth on US 76 (State 2). One of Georgia's most beautiful scenic spots. Ruins of old fort. Park under construction but open to public.

VOGEL—11.7 miles south of Blairsville on US 19 (State 11). Cabin accommodations; 60-acre lake for swimming, fishing, boating; picnic grounds; 6 miles of trails.

ALEXANDER H. STEPHENS MEMORIAL—At Crawfordville on State 15. Location of Liberty Hall, home of Alexander H. Stephens, Vice-President of the Confederacy. Entire property restored. Picnic grounds, lake for swimming and boating; children's wading pool; 4 miles of trails through beautifully wooded areas.

INDIAN SPRINGS—At Indian Springs on State 42. Historic spa, on site of Indian treaty; picnic grounds; trails; children's sand beach and playground; museum. Hotel accommodations nearby.

LITTLE OCMULGEE—At McRae on US 341 (State 27). Under construction but open to the public.

PINE MOUNTAIN—At Chipley on US 27 (State 1). Scenic highway under construction; park open to the public.

CHEHAW—2.5 miles north of Albany on State 91. Under construction but open to the public.

JEFFERSON DAVIS MEMORIAL—At Irwinville on State 32. Under construction. Site of Davis' capture by Federal troops.

SANTO DOMINGO—9.5 miles north of Brunswick on US 17 (State 25). Ruins of the supposed Santo Domingo deTalaje Mission. Spanish Zoo containing artifacts found in excavation of lagoon; picnic grounds and trails through sub-tropical vegetation.

STATE CAPITOL—Atlanta—Patterned after our National Capitol; completed in 1889. Houses State Library and State Museum of many interesting exhibits of geological specimens and wild life native to Georgia.

CYCLORAMA, GRANT PARK—Atlanta—Painting of the Battle of Atlanta, fought July 22, 1864. 50 feet high, 400 feet in circumference, weighs 10,000 pounds.

FEDERAL PRISON—Atlanta—Houses about 3,000 Federal prisoners.

FORT McPHERSON—4 miles southwest of Atlanta on US 29 (State 14). Military Reservation and headquarters of 4th Corps Area U. S. Army.

EMORY UNIVERSITY—Emory, near Atlanta. Liberal Arts and Professional Schools; enrollment about 2,500. Library houses Egyptian-Babylonian collection of 2,000-year-old mummies, Indian and Stone Age relics.

GEORGIA SCHOOL OF TECHNOLOGY—Atlanta—Engineering School of the University System of Georgia; enrollment about 3,000.

WREN'S NEST—Atlanta—Home of Joel Chandler Harris, preserved much as it was when he wrote "Uncle Remus" Tales.

STONE MOUNTAIN—16 miles east of Atlanta on State 19. Largest exposed granite dome in North America. Partially completed Confederate Memorial on its sheer side.

SIGNERS MONUMENT—Augusta—Obelisk under which lie the remains of George Walton and Lyman Hall, two of the three Georgians who signed the Declaration of Independence.

FORT PULASKI NATIONAL PARK—15 miles east of Savannah on US 80 (State 26). Restored historic fort.

BETHESDA—9 miles south of Savannah on US 17 (State 25). Oldest orphanage in U. S. A. Founded by the Rev. George Whitefield in 1740.

LAW HOUSE—Savannah—Site of the founding of the first Girl Scout troop by Juliette Low.

CHRIST CHURCH—Savannah—The first organized congregation in the colony (1736) and said to be where Rev. John Wesley organized the first Protestant Sunday School in the world.

FORT SCREVEN—17 miles east of Savannah on US 80 (State 26). U. S. Military Reservation on Tybee Island.

EBENEZER CHURCH—Near Savannah River, east of Springfield, on State 119. Built in 1769, one of the oldest Colonial buildings in Georgia still in use. Occupied as British army headquarters during Revolutionary War.

LANIER'S OAK—Brunswick—The tree under which Sidney Lanier received inspiration for his poem, "The Marshes of Glynn."

FORT FREDERICA—St. Simon Island—Historic fort built by Oglethorpe in 1736; considered the largest British fort in America.

NANCY HART FOREST PARK—One mile east of State 17, ten miles south of Elberton. Home place of Nancy Hart, Georgia's famous Revolutionary heroine. Reproduction of her cabin on original site.

OLD STATE CAPITOL—Milledgeville—Seat of Government from 1807 to 1868. Now houses a military school.

UNIVERSITY OF GEORGIA—Athens—Oldest chartered State University in the U. S. A. (1785).

TREE THAT OWNS ITSELF—Athens—By deed of 1866 from W. H. Jackson.

FORT BENNING—9 miles south of Columbus on US 27 (State 1). Military Reservation; largest infantry school in the world.

WESLEYAN COLLEGE—Macon—Oldest chartered women's college to grant degrees in the U. S. A.

OCMULGEE NATIONAL MONUMENT—2 miles southeast of Macon on US 80 (State 19). Five prehistoric Indian Mounds of archeological interest; park and museum under construction but open to the public.

BERRY SCHOOLS—Rome—3 miles north of Rome on US 27 (State 1). Famous educational institution for mountain children.

OLD SLAVE MARKET—Louisville—Built in 1758, it is probably the only slave market of its type still standing in the South.

NATIONAL CEMETERY—Andersonville—On State 49. Site of historic Confederate prison.

MIDWAY CHURCH—Midway—On US 17 (State 25). Founded by Congregationalists in 1752; present structure erected in 1792.

SANTA MARIA MISSION—St. Marys—On State 40. Supposed ruins of an old Spanish Mission.

OKEFENOKEE SWAMP—South of Waycross between US 1 (State 4) and State 23. Wild life reservation covering 680 square miles. Retreat of many kinds of wild life, a place of mystery and romance.

PROVIDENCE CAVERNS—Near Lumpkin. Soil erosion chasms as much as 200 feet deep. Known as the Grand Canyons of Georgia.

LITTLE WHITE HOUSE—Warm Springs—On State 41. Part-time home of President Franklin D. Roosevelt. Site of medicinal springs and Warm Springs Foundation.

CHICKAMAUGA AND CHATTANOOGA NATIONAL MILITARY PARK—On US 27 (State 1); 2.5 miles south of Georgia-Tennessee Line, lying along the highway for 3 miles. Established by Act of Congress of 1890.

BRASSTOWN BALD—10 miles south of Hiawassee near State 75. Altitude 4,768 feet. Highest point in Georgia.

AMICALOLA FALLS—10 miles northeast of Dawsonville on State 53. Formed by several cascades with a total drop of 729 feet.

TOCCOA FALLS—4 miles from Toccoa on State 17. Bridal veil falls 186 feet high.

TALLULAH GORGE—Tallulah Falls—On US 23 (State 15). Deep gorge cut by the Tallulah River. One of the most beautiful scenic attractions in the State.

HIS MAP is presented to you by the State Highway Board of Georgia with the hope that it will help to guide you over our vast system of State highways and will suggest, not only to guest motorists but also to our own residents, a few of the points of interest within our State well worth seeing.

There are many points and towns of historic interest and scenic beauty in Georgia, but space permits us to show only a few on the Scenic Map, with some of the important highway connections to show that they may be reached easily. We feel that a visit to any of these will stimulate your interest sufficiently to visit others not shown, but of equal importance and beauty throughout the State.

There is no season of the year when Georgia highways will not lead you through beautiful scenes. The mountain grandeur of our northern section, the beautiful central and southern portions, and the coast, with its rich historic traditions and "old southern" atmosphere, all beckon to the traveler. There is not a single section which cannot be reached over smooth and well-marked highways.

The State Highway Board and the people of Georgia invite the motorists of America to visit the Empire State of the South and enjoy its scenic beauty and true southern hospitality.

Copies of this map may be obtained upon application to the State Highway Board of Georgia, 2 Capitol Square, Atlanta; any Chamber of Commerce in the State or any local newspaper in towns in which there is no Chamber of Commerce.

Current detour information may be obtained upon application to the State Highway Board, Atlanta, or the Division offices of the State Highway Department, located at Augusta, Columbus, Fitzgerald, Gainesville, Macon, Rome and Savannah.

COMMERCIAL AND EMERGENCY AIRPORTS

NOTE: Mileage is from center of city

ADAIRSVILLE—E. of US 41 (State 3); 1.5 mi. N.
ALBANY—W. of State 91; 1.5 mi. S.W.
ALMA—S. of State 32; 1 mi. S.W.
AMERICUS—1.5 mi. S.
ATHENS—EPPS FIELD. N. of State 10; 4 mi. N.E.
ATLANTA—CANDLER FIELD. Between US 19 (State 3) and US 29 (State 14); 9.5 mi. S.W. from new P.O.
AUGUSTA—DANIEL FIELD. S. of Water Works; W. of U. S. Government Hospital; 5.1 mi. W.S.W.
BAINBRIDGE—COMMODORE DECATUR AIRPORT. S. of US 84 (State 38); 2 mi. W.
BRUNSWICK—GLYNN COUNTY AIRPORT. 6 mi. E. on St. Simon Island.
BUENA VISTA—At intersection of State 26 and 41; 1.3 mi. N. by N.W.
CARTERSVILLE—E. of State 20; 2.5 mi. N.E.
COCHRAN—S. of State 26; 2 mi. E.
COLUMBUS—S. of US 27 (State 1); 2.5 mi. S.E.
CORDELE—0.2 mi. W. of US 41 (State 7); 2 mi. N.W.
DALTON—E. of State 71; 2 mi. N.
DOUGLAS—W. of State 31; 1.5 mi. S.
ELBERTON—S. of State 34, E. of State 17; 2.5 mi. S.E.
FITZGERALD—LYNWOOD AIRPORT. N. of County (dirt) Rd.; 1.8 mi. N.
FOLKSTON—W. of US 1 (State 4); 1.5 mi. N.W.
FORT BENNING—On Chattahoochee River, W. of headquarters.
GAINESVILLE—E. of County Rd.; 2 mi. S.S.E.
GRIFFIN—W. of State 3; 1.8 mi. S.
JACKSON—5 mi. S.W.
JEFFERSON—S. of US 129 (State 15); 1.5 mi. S.E.
LaGRANGE—CALLAWAY FIELD. E. of State 14; 3 mi. S.W.
LAVONIA—E. of State 59; 2 mi. N.E.
MACON—HERBERT SMART FIELD. E. of State 87; 5.5 mi. S.E.
MADISON—E. of State 83; 2 mi. S.W.
McRAE—S. of State 27; 1.0 mi. S.E.
MILLEDGEVILLE—CASE-FOWLER AIRPORT. W. of State 24; 1.9 mi. N.W.
MOULTRIE—CLARK FIELD. 1 mi. N.W.
ROME—3 mi. N.W.
ROYSTON—E. of State 17; 1 mi. N.
SAINT MARYS—1.5 mi. N.W.
SAVANNAH—HUNTER FIELD. S. of State 26; 5 mi. S.
STATESBORO—E. of State 73; 3.7 mi. N.E.
SWAINSBORO—E. of US 1 (State 4); 1.5 mi. S.E.
TALLAPOOSA—10 mi. S.W. of Bremen.
THOMASTON—W. of US 19 (State 3); 2 mi. N.
THOMASVILLE—VESE FIELD. W. of State 3; 1.2 mi. S.W.
TIFTON—W. of US 41 (State 7); 1 mi. S.
VALDOSTA—W. of US 41 (State 7); 2.5 mi. S.
WARM SPRINGS—ROOSEVELT FIELD. E. of State 41; 2.5 mi. N.
WAYCROSS—WARE COUNTY AIRPORT. W. of US 1 (State 4); 3.5 mi. N.W.
WINDER—RUSSELL FIELD. 1 mi. N.E.

Typical Scenes Along Georgia Highways

MILEAGE CHART

This chart shows the distance between some of the principal points in Georgia; also distances between these points and several important cities in other States. Distances are based upon mileage from center of corporation to center of corporation via the shortest practicable route. For distances between points, other than those shown on this chart, see map on reverse side.

HOW TO USE CHART. The mileage between any two points is shown at the intersection of the horizontal line leading from left to right from one of the points, with the vertical line leading downward from the other. For instance, to find the distance from Albany to Atlanta, follow the line leading to the right from Albany until it intersects the line leading to Atlanta. The figure in the square is 169 which is the mileage between the two points.

	ALBANY	AMERICUS	ANDERSON, S. C.	ASHEVILLE, N. C.	ATHENS	ATLANTA	AUGUSTA	BAINBRIDGE	BIRMINGHAM, ALA.	BRUNSWICK	CHATTANOOGA, TENN.	COLUMBUS	DUBLIN	FORT VALLEY	GAINESVILLE	GREENVILLE, S. C.	GRIFFIN	JACKSONVILLE, FLA.	LA GRANGE	MACON	MILLEDGEVILLE	MONTGOMERY, ALA.	MOULTRIE	OUITMAN	ROME	SAVANNAH	TALLAHASSEE, FLA.	THOMASVILLE	TIFTON	VALDOSTA	WAYCROSS
ALBANY		37	260	354	198	169	241	63	239	177	289	93	134	85	221	292	130	196	143	111	145	171	46	77	239	227	94	60	43	90	118
AMERICUS	37		223	318	162	132	204	100	216	214	259	68	97	48	184	256	94	233	118	74	107	133	83	114	202	211	131	96	73	120	148
ANDERSON, S. C.	260	223		94	62	130	95	325	298	305	224	239	207	178	94	32	157	355	197	182	135	317	276	307	225	328	318	304	258	305	278
ASHEVILLE, N. C.	354	318	94		156	210	188	417	387	398	229	319	307	272	158	62	249	429	277	246	229	397	370	401	258	321	433	398	352	399	371
ATHENS	198	162	62	156		68	101	261	236	272	170	177	117	116	41	94	95	332	135	90	73	205	214	245	131	234	282	247	194	246	227
ATLANTA	169	132	130	210	68		171	232	168	282	123	109	148	100	52	163	39	322	67	93	104	187	223	247	69	277	264	229	190	241	245
AUGUSTA	241	204	95	188	101	171		303	339	210	294	231	119	186	142	112	161	260	233	130	93	316	255	263	240	135	328	283	237	246	183
BAINBRIDGE	63	100	325	417	261	232	303		286	208	355	130	197	147	294	357	193	203	180	173	226	179	66	66	279	259	45	41	97	67	150
BIRMINGHAM, ALA.	239	216	298	387	236	168	339	286		417	158	148	290	239	220	331	182	435	168	235	258	107	285	316	127	418	318	299	282	329	357
BRUNSWICK	177	214	305	398	272	282	210	208	417		405	250	146	182	312	326	243	77	292	198	193	349	163	141	360	81	205	169	135	123	60
CHATTANOOGA, TENN.	289	255	224	229	170	123	294	355	158	405		213	271	223	130	256	162	447	163	216	237	243	346	370	68	400	387	352	313	364	368
COLUMBUS	93	68	239	319	177	109	231	130	148	250	213		156	91	191	282	90	289	50	101	135	85	140	169	149	294	186	153	130	183	211
DUBLIN	134	97	207	307	117	148	119	197	290	146	271	156		73	157	239	108	223	169	55	47	233	126	164	217	129	198	163	113	160	108
FORT VALLEY	85	48	178	272	116	100	156	147	239	182	223	91	73		152	210	61	222	95	26	60	178	104	138	169	192	170	135	86	133	161
GAINESVILLE	227	184	94	158	41	52	142	284	220	312	130	161	157	152		111	91	347	119	130	151	339	270	300	131	249	316	281	242	283	269
GREENVILLE, S. C.	292	256	32	62	94	163	112	357	331	326	256	282	239	210	111		212	372	240	184	167	350	308	339	241	244	170	336	290	337	295
GRIFFIN	130	94	157	249	95	39	161	193	162	243	162	90	108	61	91	212		287	59	53	81	165	159	199	108	237	225	190	141	207	209
JACKSONVILLE, FLA.	196	233	355	429	332	323	360	203	435	77	447	289	223	222	347	372	287		339	242	234	390	179	148	395	158	169	164	171	124	78
LA GRANGE	143	118	197	277	138	67	233	189	168	293	163	50	169	95	179	240	59	339		114	134	106	190	220	99	209	238	203	186	233	211
MACON	111	76	152	246	90	93	130	173	235	198	216	101	55	26	130	184	53	242	114		34	186	124	155	162	184	186	152	106	153	164
MILLEDGEVILLE	145	107	135	229	73	104	93	226	258	193	227	135	47	60	101	167	81	254	154	34		220	184	188	173	176	220	185	136	187	156
MONTGOMERY, ALA.	171	153	317	397	255	187	316	179	107	349	243	85	233	176	239	350	165	390	196	186	220		217	246	190	369	224	218	214	260	289
MOULTRIE	46	83	276	370	214	223	255	66	285	163	346	140	136	104	270	308	159	179	190	124	154	217		31	295	211	63	28	28	49	112
OUITMAN	77	114	307	401	245	247	263	66	316	141	370	169	164	138	300	339	199	149	220	155	188	246	31		308	190	63	28	53	19	82
ROME	239	202	225	258	131	69	240	279	127	360	68	149	217	169	131	241	108	295	99	162	173	190	285	308		346	333	298	259	310	317
SAVANNAH	227	211	228	321	234	277	133	259	418	81	400	284	129	192	249	244	237	158	304	184	176	369	211	190	346		253	218	183	171	109
TALLAHASSEE, FLA.	94	131	338	433	282	264	328	45	318	205	387	188	198	170	316	370	225	169	238	188	220	224	62	83	333	253		35	91	82	145
THOMASVILLE	60	96	304	398	247	229	283	41	299	169	352	153	163	135	281	336	190	164	203	152	185	218	28	28	298	218	35		86	47	110
TIFTON	43	73	258	352	194	190	237	97	283	135	313	130	113	86	242	290	141	171	186	104	136	214	28	53	259	183	91	56		47	78
VALDOSTA	90	120	305	399	243	241	246	87	329	123	364	183	160	133	283	337	207	124	233	153	187	260	49	19	310	171	82	47	47		83
WAYCROSS	118	148	278	371	227	246	183	150	357	60	368	211	106	161	269	295	209	78	271	164	156	289	112	83	317	109	145	110	75	83	

STATE HIGHWAY BOARD
OF
GEORGIA

W. L. MILLER
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MEMBER

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O. T. RAY
DIRECTOR, DIVISION OF HIGHWAY PLANNING

STATE HIGHWAY BOARD OF GEORGIA BUILDING
TWO CAPITOL SQUARE, ATLANTA, GA.

1938
FOR FREE DISTRIBUTION

OFFICIAL MAP
STATE HIGHWAY SYSTEM
OF
GEORGIA

E. D. RIVERS
Governor

1938
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STATE OF GEORGIA
SYSTEM OF STATE ROADS

Prepared By

STATE HIGHWAY BOARD OF GEORGIA

DIVISION OF HIGHWAY PLANNING

Scale of Miles

10 0 10 20 30 40 Miles

APPROVED—
E. D. Hanlin
STATE HIGHWAY ENGINEER

APPROVED BY THE STATE HIGHWAY BOARD IN REGULAR SESSION, JANUARY 15, 1935

CHAIRMAN
Jim B. Ellis
Thomas H. Watson

Legend

- COMPLETED HARD SURFACE
- COMPLETED SEMI-HARD SURFACE
- SAND CLAY OR TOP SOIL
- COMPLETED GRADING NOT SURFACED
- UNDER CONSTRUCTION - ALL TYPES
- UNIMPROVED BUT MAINTAINED
- BRIDGE UNDER CONSTRUCTION
- COMPLETED BRIDGE
- 78 STATE ROUTE NUMBER
- 41 U.S. INTERSTATE ROUTE NUMBER
- M.B. MILEAGE BETWEEN POINTS
- STATE CAPITAL
- COUNTY SEAT
- JUNCTION POINT
- AIRPORT
- RED CROSS FIRST AID STATION
- COUNTY BOUNDARIES
- PARKS
- NATIONAL FOREST AREA

TENNESSEE NORTH CAROLINA SOUTH CAROLINA ALABAMA FLORIDA ATLANTIC OCEAN

CHATTANOOGA ATLANTA COLUMBUS MACON SAVANNAH AUGUSTA ALBANY TALLAHASSEE JACKSONVILLE